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THE REVOLUTION IN WARFARE

by

B. H. LIDDELL HART

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To
P. C. S. ('PATRICK') HOBART
in tribute
to his dynamic contribution
to the development of armoured mobility,
and to his personal qualities
as seen in twenty years' association

INTRODUCTION

How strange appears to-day the state of optimism about human progress which prevailed in the last century. It reached its zenith when the Great Exhibition of 1851 opened in the Crystal Palace, and was hailed as the inauguration of a Golden Age—of ever-widening peaceful prosperity assured by scientific and technical progress. That dream has changed into a nightmare. Yet it was not without justification, since all the material conditions for its fulfilment have been developed to an extent surpassing expectation, although the new generations endowed with such potentialities have been led to divert them largely into channels of destruction. The causes and the consequences might both be summed up in the old saying: 'People who live in glass houses should not throw stones.'

Can people learn that lesson before their prospects of prosperity are splintered beyond repair in an orgy of mutual devastation? The best chance may lie in developing a deeper understanding of modern warfare on their part, together with a realization of their mutual responsibility for the way it has got out of control. The development of means has outstripped the growth of minds.

Science and technology have produced a greater transformation of the physical conditions and apparatus of life in the past hundred years than had taken place in the previous two thousand years. Yet when men turn these tremendous new powers to a war purpose, they employ them as recklessly as their ancestors employed the primitive means of the past, and they pursue the same traditional ends without regard to the difference of effect. Indeed, the governments of modern nations at war have largely ceased to think of the post-war effects which earlier statesmen were wise enough to bear in mind—a consideration

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which led in the eighteenth century to a self-imposed limitation of methods. Modern nations have reverted to a more primitive extreme—akin to the practices of warfare between barbaric hordes that were armed with spear and sword—at the same time as they have become possessed of science-given instruments for multiple destruction at long range.

The revolution in warfare has thus been two-sided—on the one side, in the instruments, the technique of warfare; on the other side, in the character of warfare.

I

THE TECHNIQUE OF WARFARE

On the instrument side, the great change has been the development of mechanical power to the increasing domination of man-power. The significance of the change has been partially obscured by the parallel development in the size of forces that was fostered by the twin ideas of the 'nation-in-arms' and of 'absolute' (i.e. unlimited) warfare. These merged to form the current conception of 'total warfare', accompanied by an increasingly intensive use of conscription. The result is that a growing recognition of qualitative factors has been offset by the growth of quantitative demands.

These have hitherto nullified predictions as to the displacement of man-power by mechanical power, and the abandonment of mass armies in favour of small forces composed of expert military technicians. While mechanical appliances have replaced men in many particular functions, or reduced the numbers needed, the surplus has merely been diverted to other functions—some of which have been newly created by the mechanical trend of warfare. It is true that there has been a great diminution in the proportion of men actually employed in a fighting function, but this has been due to the great increase in the proportion required to assist and maintain each fighting man. In these circumstances the issue of a prolonged war may still be decided by exhaustion of man-power. Nevertheless, such a fact should not obscure the deeper lesson that, in modern warfare, there has been a great depreciation in the value of man-power compared with mechanical power. A nation that is deficient in mechanical equipment is not likely to have a chance of prolonging the war if exposed to attack by a well-equipped nation. However many men the former can put in the field, their value will be discounted by their mechanical inferiority, and the

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war be quickly lost. In such a case, although the attacker may happen to enjoy a superiority in man-power as well as in mechanical power, the real cause of the decision will lie in his mechanical advantage.

Moreover, the decision may be produced by the paralysing initial effect of strokes delivered by a comparatively small mechanized element, before the larger proportion of his forces have even come into action and exerted their weight.

In the past, the strength of armies was always measured in number of men. And this meant mainly the number armed with individual weapons—the infantryman's rifle and the cavalryman's sabre. Indeed, as late as the last war it was customary to compute strength in 'rifles' and 'sabres'—so tenacious is the grip of traditional modes of thought. While such terms had then become an anachronism, they had been a reasonable gauge of strength until less than a century ago. The decisiveness of the 'big battalions' was literally true. Although the military reforms of Gustavus Adolphus early in the seventeenth century had foreshadowed the importance of artillery in the field, instead of merely in sieges, it was not until the dawn of the nineteenth century that this heavier kind of weapon began to play a preponderant part in deciding the issue of battles. Even then, despite the striking evidence provided by Napoleon's concentrated use of artillery to blast a breach in the opposing front, this inauguration of mechanized warfare was cut short by the fall of the curtain on the Napoleonic wars. It was followed by a swing-back to reliance on hand-weapons. Not for another half century did artillery again play a part comparable to what it had done in Napoleon's battles, and a complete century passed before it clearly became the decisive instrument.

The slow rate of change is shown in the proportion of artillery at successive periods. In the middle of the eighteenth century two field guns to 1,000 men was a normal ratio. It remained about the same in Napoleon's *armies*, though in some of his later *battles* it was brought up as high as five guns to 1,000 men.

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By 1870 the average had only risen to three guns to 1,000 men, even though the Germans owed much of their advantage to the qualitative superiority of their artillery. Development still lagged, and although the Russo-Japanese War of 1904-5 saw progress in other respects, the scale of artillery was slightly less than in 1870. In that war the spreading use of entrenchments, coupled with the development in small arms, raised an increasing obstacle to success in the attack. The prospects of making headway came to depend more and more on outflanking the defence, and although this was usually possible in the Manchurian theatre, where the space was large in proportion to the forces engaged, operations became increasingly slow as the war went on.

The lesson made some impression in Europe, providing a spur to the development of superior defence-breaking weapons, and in 1914 the better-equipped armies took the field with a ratio of six guns to 1,000 men. Experience soon showed that this was insufficient, since manœuvre was cramped. For the western theatre was narrow in proportion to the huge size of the armies deployed there, with the result that a continuous front was established after the opening moves had miscarried. The combined effect of entrenchments, barbed wire, and automatic-firing small arms froze this continuous front into a state of deadlock. In this *impasse*, multiplication of artillery was the primary solution developed to break the crust and dissolve the deadlock. During the later years of the last war, attacks were often backed by more than twenty guns to 1,000 men. In addition, a new form of short-range support had been provided by the development of mortars. Another way of expressing this ratio of mechanized power is in terms of fire to space. The concentration of shell-fire was raised to such a pitch that in some of the more effective offensives of 1917 there was one gun to every five or six yards of the frontage assaulted—over 300 guns to the mile.

Along with this growth of fire-power in the last hundred years came a no less striking development in mobility—or at

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least, in power of movement. From the earliest times down to the middle of the nineteenth century, the movement of armies was bound by the limits of the human leg, supplemented by the animal leg. In the main, manœuvre could only be carried out at marching pace. Then the railway was turned to military use. This development increased the pace and power of strategical manœuvre, but at the same time tactical manœuvre (i.e., on the battlefield) was increasingly cramped by the improvement in the range and power of firearms. The railway also fostered an increase in the size of field armies, by making it possible to move up large numbers of men quickly, and feed them with supplies sent up by the same means. This led to the accumulation of ever-growing masses at the end of a railway line, on which they became increasingly dependent. The sum effect was to decrease the mobility of operations.

That effect was demonstrated in the American Civil War. The drawbacks of a rail-dependent mass were first exposed by the mobile strokes of Confederate raiders such as Forrest and Morgan. Then the tables were turned by Sherman who, profiting by the lesson, regained mobility by cutting down his army's *impedimenta* and cutting loose from his own communications, preparatory to the march through Georgia and the Carolinas that wrecked the lines on which Lee's army depended, and cut off its supplies at their source. The effect was quickly decisive.

The lesson was disregarded in Europe, where the armies were expanded with ever-growing reliance, and dependence, on the railway network. The strategical risk to their tail was faintly foreshadowed early in the last war, when the German advance into France broke down under the strain of its own supply difficulties, accentuated by the Belgian demolition of important bridges; and again late in the last war, by the effect of some of the embryonic Allied air attacks on communications. But tactical frustration at the head of any advance was much more clearly established. Infantry advance on the battlefield soon became almost impossible in face of defensive fire—especially that of machine-guns, which had immensely multiplied the

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stopping power of small arms. Cavalry advance was even worse paralysed by the same agency.

The offensive would have become palpably hopeless if a striking development in artillery had not taken place simultaneously, to counterbalance the advantage that the defensive had gained from the development in small arms. At the outbreak of war in 1914, the French had the world's best field gun in the famous '75', but the Germans profited by their foresight in adapting to field use heavier pieces which had hitherto been considered suited only to siege operations. Such adaptation spread when the French deadlock set in, and operations as a whole developed the character of a vast-scale siege. All the armies hastened to multiply the number of heavy field pieces, so that by 1916 their proportion had risen to about one in every four guns, and by 1917 to one in three. The bulk of them were of the howitzer type, whose steeply dropping shells were more effective in smashing a deep network of entrenchments than the longer range but lower trajectory gun.

This mass of artillery was used, in an extended form of the Napoleonic tactics, to blast a hole in the opposing front, and thus open the way for the infantry advance. While this method often enabled the assault to succeed—when the bombardment was sufficiently intense to paralyse the defenders temporarily—it could only pave the way for an advance of limited extent, and was met by disposing the defence in greater depth. A particularly effective counter was introduced by the adoption of 'elastic defence'—in which tactics the forward lines of trenches were held in light strength, while the bulk of the defending force waited in rearward lines to catch the advance when its initial momentum was waning. An inherent handicap on the artillery-blasting method was that it ploughed up the ground over which the advance had to be made, thus checking the rapidity of the attacker in exploiting his success. Another brake on the advance was the immense amount of wheeled transport required to feed the guns with shells, as well as the difficulty of moving the guns and the transport forward across the ploughed-up battlefield as

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the attack progressed. The combination of these handicaps produced the result that although a 'break-in' was often achieved, it could not be developed into a 'break-through'.

A more promising means was introduced by the development of the tank—an armoured fighting vehicle which moved on tracks, instead of on wheels, and could thus cross rough ground. Mishandled by the High Command on its first appearance in 1916, it proved at Cambrai in November 1917, and frequently again in 1918, that it could pave the way for a quicker and deeper advance than had been possible by any other method. The concentrated use of tanks came near to producing a breakthrough on several occasions, but this was never completely achieved.

The end of the war left the defensive still in the ascendant, though not so definitely as in the middle stages. In the spring of 1918 the German offensives made strikingly deep and rapid progress, though they fell short of any decisive result. This measure of success was due to the revival of surprise in varied forms, if also to the Allies' slump after the excessive strain of their own abortive offensives in 1915, 1916 and 1917. In the late summer and autumn the combination of Allied offensives culminated in the enemy's capitulation, after a series of military reverses had shaken the nerve of the German Supreme Command, and its loss of nerve had shattered the confidence of the war-weary German people, thus detonating an internal revolution. In this offensive the Allied armies enjoyed a superiority of strength approaching three to one, a superiority even more marked in guns and tanks, while the German armies were suffering from the self-exhausting effects of their own frustrated spring offensive. The combination of these factors sufficed to outweigh the intrinsic superiority of defence over attack. Even so, at the time when Germany capitulated, the Allied offensive was losing impetus, and the Allied military leaders admitted that the German armies had not been broken, while their own needed a lengthy pause to reorganize. If the war had continued into 1919, there was a serious risk of it being further protracted, since the

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prospective growth of the American Army would not have equalled the shrinkage in the British and French armies.

After the war, the victorious armies remained content to perpetuate the methods of 1918, modified by an inclination to swing back to the methods and outlook of 1914. But a few of the younger soldiers in the British Army—which had rather hesitatingly taken the lead in developing the tank—became the prophets of a new era of mechanized warfare in which high-speed tanks, or, as some argued, the combination of tanks and bombing aircraft, would open the gates of the future. At the same time the leaders of another wartime innovation, the Royal Air Force, propounded the view that the bomber would be the decisive factor in any future war, and would suffice in itself to produce a decision—by destroying the industrial resources of the opposing power. That view came to be associated with the writings of the Italian general, Douhet, but had actually been a primary article in the R.A.F. creed before Douhet's theory had gained currency.

The tank-cum-air theory received more attention in defeated Germany than it did among the victorious powers, while another quarter highly receptive to the new idea was the new Soviet Union which had emerged from the Russian Revolution. In either case, the idea of such a compound key, applied in the military sphere, was more favoured than that of a purely bombing key, applied in the national sphere as a whole.

When the next great war erupted, twenty-one years after the last, the tank-cum-air theory was put into practice by Nazi Germany. It achieved a speedy triumph over Poland in 1939, and a greater one over the Western Allies in 1940.

These dramatic results naturally created a widespread impression that attack had become intrinsically superior to defence. Popular opinion, including even military opinion, was so startled that it took little account of the fact that Germany had developed an overwhelming superiority in tanks and bombers during the years immediately preceding the outbreak; or of the fact that the opposing armies had neglected even to provide

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themselves with the lighter types of equipment needed to check these offensive instruments. Several years of fighting passed before hard experience corrected such impressions, and opinion regained its balance. Even to-day, such fallacious conclusions have not been completely dissipated in unthinking minds.

The first corrective came with the German invasion of Russia in 1941. Here the German Army no longer enjoyed a superiority in tanks and aircraft, as in the 1940 invasion of France, but it found a compensating advantage in the much wider space available for manœuvre, coupled with its technical skill in manœuvre. It would seem also to have been helped by the Red Army's then belief in a theory of ultra-offensive action that was out of proportion to its equipment and skill—with the result that a large percentage of its active formations were trapped and annihilated at an early stage of the campaign. Yet, despite the way that the Red Army's chances of successful resistance were thus imperilled, the Germans were checked when they converged on obvious objectives such as Leningrad, Moscow and Rostov, where the Russians could put up a concentrated defence.

When winter came, the temporary offensive advantage which the Russian forces gained from acclimatization to Russian winter conditions was in turn nullified by the defensive strength of the chain of focal points—towns that were centres of rail and road communications—which the Germans concentrated on holding as bastions. In the summer of 1942, the Germans profited at the outset by awaiting and repelling the Red Army's offensive towards Kharkov. Then, repeating their own earlier offensive method, though on a now limited front, they were able to outmanœuvre the Russians and hustle them back to the Caucasus and the Volga. But when the German offensive forfeited its flexibility of manœuvre by converging on such an obvious objective as Stalingrad, defence again prevailed. The offensive was not only baffled, but carried its own disastrous recoil—as in the last war. Waiting until the Germans' offensive effort was exhausted, the Russians retorted with a counter-offensive that, beyond its immediate effect of regaining much of the

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lost ground, definitely turned the tide of the war. Even so, the Russian winter offensive was checked by, and the front stabilized along, the chain of bastion-towns, or 'hedge-hogs', which the Germans had gained time to fortify.

In the summer of 1943 the Russians profited by waiting for a German offensive, which was eventually delivered in July, against the Kursk salient. Breaking the force of this stroke, after a week of tough fighting, the Russians launched their own offensive, as a counter-offensive aimed at the exposed flanks. The stroke cut deep, having the extra force of a coiled spring, and when the Russians' impetus diminished on one sector they regained impetus by extending the offensive to other sectors. This process continued on an ever-widening scale, so that the Germans had no respite from the series of alternating blows, which impaired their power to switch reserves to threatened points. The method resembled that which Marshal Foch had practised in 1918, but the technique was improved and the instruments more mobile, while the space for manœuvre was much wider.

By this time the balance of force had turned heavily in favour of the side that had originally been on the defence, and it swung increasingly in their favour—helped not only by the later-growing strength of the Allied nations, and by the drain of Germany's losses upon her more limited total capacity, but also by the way her forces had been stretched to occupy and hold down the countries she had conquered in her earlier offensive spasm. The effect of that passive dispersion was now accentuated by the active distraction caused by the landing of the Anglo-American armies in Sicily, and the Italians' prompt collapse. To repair the breach in the southern face of what the Germans called the 'Fortress of Europe', and to meet the impending threat of a stronger invasion in the west, the Germans had to divert reserves that they urgently needed in Russia.

There, the Red Army's offensive went on without any serious check—either to its advance, or from the ripostes which the Germans occasionally made. While there were intermittent

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pauses, these were due not only to the Russians' need of repairing communications prior to a fresh thrust, but often to a deliberate policy of checking their own stride with a view to repelling the anticipated German counter-thrust and then following up the attacker's recoil, before he had recovered his balance.

This strategic policy had a sound basis of experience in the defensive-offensive trend of tactics which had developed in the course of the war. Its advantage had been clearly and repeatedly brought out in the North African campaign, where the method had been increasingly practised. Indeed, the decisive advantage which the Germans gained in 1940 by drawing the Allied armies precipitately into Belgium, and then piercing the weak hinge of their advance, might be considered the most striking demonstration of this 'baited gambit' of warfare. The method can be epitomized as that of trying to tempt the opponent into a hurried advance or rash attack, catching him in a fire-trap, and exploiting the recoil. Offensive moves are used, and are often most effective, as a bait for such traps. This combination of defence and attack is essentially similar to the basis of individual combat in earlier times. It represents the combined use of sword and shield—the principle being to break the opponent's thrust on one's shield before delivering the real thrust. This is most likely to succeed when the opponent's stroke has miscarried, and he is momentarily off his balance.

The adoption of such tactics on the Russian front was the more significant because there the front was so wide as to allow ample room for manœuvre, and was thus exceptionally favourable to the offensive. But the Russians had learned much from experience. Their successful resistance to the German invasion, and their own frustration in earlier offensives, had shown them that, even under such conditions, tactical defence was much more powerful than orthodox pre-war theory had assumed. They applied this lesson when changing circumstances, and their growing superiority of strength, made it possible for them to wrest the initiative from the enemy and

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embark on a sustained offensive strategy. With a shrewd economy of force, and a keen sense of security, they converted the value of tactical defence into an offensive asset—using it as a manœuvrable shield in their penetrating advances.

Such *offensive use of the defensive* had been foreshadowed by Sherman's 'mobile breastworks' in his march through Georgia; and, earlier still, by Wellington's tactics in the Peninsular War. It had been exploited by the Germans in their invasions of Poland, France and Russia—though most onlookers were so dazzled by the sweeping advance that they failed to notice the cunning blend of defence with attack. But the Russians observed it closely enough, in 1941, to profit by the demonstration, and learnt how to apply it with improvements.

This combined technique was fostered by the multiplication and improvement of anti-tank weapons. It came to be realized that such weapons were most effective when they possessed a mobility matching the tank's; and also that they were at a disadvantage when towed by a separate vehicle, so that they had to be unhooked and turned round before they could come into action. Thus the next step was to mount the gun on a tracked vehicle similar to the tank, enabling it to open fire at any moment. This 'self-propelled gun' acquired armour, and developed an increasing resemblance to the tank. At the same time experience brought a growing realization that the tank itself could be used in defence—that a tank lying up in ambush, with only the top of its gun-turret exposed, had a natural advantage over a tank that was advancing in the open. Tanks were often dug-in. The next step, naturally, was to dig sunken emplacements that tanks could move into, and out again.

The power of defence has been increased because the fire-power checks in front of an advancing force have been multiplied by supply and transport brakes behind it. Armies have tended to treat the motor vehicle, in the same way they earlier treated the railway, as a means of amassing weight more easily—and by multiplying their *impedimenta* they have subtracted from the addition to their mobility. Even where space is large

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enough to enable a force to outflank and by-pass centres of resistance, its freedom of movement is limited by its own maintenance needs—and the more limited in proportion as it is maintained by railway. A similar limitation applies in the battle-zone where supply is by wheeled vehicles that are road-bound. The striking head may be able to by-pass obstacles—such as defended towns where roads converge—but it cannot push on far if its tail is tied to the road, and has to wait until the obstacles can be removed. A force thus constituted may find its manœuvring power almost as restricted as that of a snake wriggling down a drainpipe.

This handicap has much reduced the potentialities of modern mobile forces. For what are called 'armoured divisions' have only a small spearhead of tanks, supported by a much larger proportion of motorized infantry, artillery, engineers and maintenance troops. The tanks amount to less than a tenth of the total number of vehicles, while the actual tank crews represent an even smaller proportion of the total number of men. Such proportions make the division unwieldy in manœuvre, and vulnerable to air attack, so that its mobility is easily paralysed. To vary the metaphor, the so-called 'armoured division' of the present stage is too much like an inverted turtle—with a small armour-clad head popping out of a huge soft-skinned body.

Thus the basic problem of mobility is to give a force as a whole the power of movement off the road—equal to that which its striking head possesses. This problem may be solved by the use of tracked vehicles for transport, or wheeled vehicles of such improved design that they can cross rough or swampy ground. Another aid to the solution is the development of air transport, both for supply and for troop-carrying purposes. The problem itself can be diminished by reducing the scale of non-essential supplies, accustoming troops to hard conditions, and pruning the 'overheads' in military organization—thus curtailing the *impedimenta* that so easily clogs the movement of armies. The Red Army has been able to go further than most in these respects, while also exploiting some of the technical

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possibilities of cross-country mobility, and the results have often been reflected in its strategic progress.

At the same time the Red Army's success owes much to the space conditions on the Russian front. In the last war it became a rule of experience that an average of one division for every two miles of front was required to form a secure defence. The increase and improvement in automatic firearms enable a division to hold a somewhat longer front with reasonable security. But, in Russia, forces have been stretched out of all proportion to past standards. Even when the concentration of force there was at its maximum, divisions had to cover an average of about ten miles apiece. As the German strength shrunk, under the combined effect of wastage and distraction elsewhere, the stretch became greater. In these circumstances, the army on the defensive was bound to concentrate on holding the road-centres, leaving the intervals so thinly covered that penetration became easy.

A grasp of that fact is essential to an understanding of events. It corrects the popular impression that the scales of modern warfare have been abruptly tilted by turns on the side of attack or defence, and that one or other has been definitely in the ascendant at successive periods.

Analysis shows that, apart from the balance of material force, the prospects of success mainly depend upon the ratio between force and space—between the size of the forces available and the extent of the space that the defender has to cover. Where the density of force is low, the defender is handicapped, disproportionately to his actual strength; where it is high, the attacker is similarly handicapped—though in either case rapidity of movement can diminish the handicap. To carry the calculation further: where the ratio of force to space is high enough to provide a continuous defensive front, with a properly woven network of fire and mobile reserves, the attacking side requires about a three to one superiority—measured in weapon power—to achieve more than a local and momentary effect. That con-

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clusion was drawn from the experience of the last war; although disputed in many quarters during the peace interval and the early stages of the present war, it has come to be recognized authoritatively as experience has extended. Indeed, the verdict of Russian authorities is that 'the defence of continuous fronts in the present war is more powerful than in the last war'.

It may seem paradoxical that such a view should be formed on a front where the offensive has been preponderant. The explanation is that the width of the front in Russia has always been too large, in comparison with the forces deployed there, for either side to be able to cover its front with a really complete and closely knit network of fire, sufficiently dense to frustrate a hostile attempt to penetrate it. On such a vast front there has always been room for effective infiltration and levering manoeuvre. Thus the power of defence has been heavily handicapped except when and where the attacker concentrated his efforts against some definite and obvious objective—as in the German offensive against Leningrad and Moscow in the autumn of 1941; the Russian offensive against Kharkov in the spring of 1942; and the German offensive against Stalingrad that autumn. Then the attacking side was baffled in every case.

Where the attackers avoided making their objective obvious, and practised the strategy of indirect approach, they could generally count on levering the other side out of its positions and making extensive headway. In such conditions—where the front is too wide to weave an adequately strong and complete web of fire—the defending side cannot count on tactical defence to break the opponent's offensive will and power. It has to rely on its own capacity to use *space* to spin out *time*, in the hope of exhausting the attacker or of drawing him on to a point where he will be ripe for a counterstroke.

In sum, the difference in the course of the present war compared with the last can be traced to differences of space and speed rather than of weapons. The weapon development favourable to the offensive has been counterbalanced by the weapon development favourable to the defensive. But other conditions have

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made the present war less static. While defence is stronger, space has been wider and forces faster. These offsets have given the offensive a better chance strategically than in the last war—by providing the attacker with more room for manœuvre, and more speed of manœuvre, thus making it easier for him to achieve penetration, *so long as* he avoids pushing into bottle-necks. As these basic conditions have become to be better appreciated, strategy has more and more pursued the indirect approach.

The density factor itself has been significantly affected by modern developments. While density is primarily a matter of the scale of forces in proportion to the extent of the *front*, it becomes a matter of *area* wherever means of attacking, or even disturbing, the opponent's rear are available. The scale of force that may serve to hold a front firmly does not suffice to cover the area behind it if this is endangered by 'internal' opposing forces, such as arise among a hostile population; or if the area is exposed to the threat of 'vertical' attack, by airborne forces. For that reason, an aggressor who has overstretched himself in the spread of his conquests may suffer a spreading handicap as a result of his very success. The offensive often leads to strategic inflation—and liability to puncture.

The ratio of space to force is also fundamental to the problems of air power, the most dynamic form of mechanical power yet introduced into warfare. The advent of aircraft has brought a third dimension into movement, accompanied by an increase of speed to a pitch which is already more than ten times the practicable maximum of the fastest kind of mechanized land force. That combination of multiple space with multiplied speed gives attack an inherent advantage over defence such as it has never possessed on land. Density is diluted out of all proportion to what has occurred in the older sphere of warfare.

These effects are obvious. What may be considered surprising, however, is that in practice defence has not been nearly so weak as theory suggested. Its inherent disadvantages have been

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reduced by three main factors. The first is the use of counter-attack by faster machines, a form of tactics in which the defender has the advantage of being unburdened with bombs and with the weight of fuel required by the attacking force, which operates from more distant bases. The second is the attacker's inevitable concentration as he approaches his objective, which contracts his space for manœuvre during the critical stage. The third is radio-location which, by providing knowledge of the attacker's course, essentially tends to diminish the space that has to be covered.

Space has also a dual effect in handicapping the effect of offensive bombing, thus indirectly aiding the defence. Well-planned dispersion, both of ground forces and industrial installations, can diminish the targets available to bombers, while the height from which the bombs are dropped affects the accuracy of the aim even with the best of bomb-sights—and low-level bombing tends to increase the vulnerability of the attacker. In air warfare, since the attacker and his objective are on different planes, there is also more scope for decoying him into wasting his bombs on dummy targets.

The sum of these factors accounts for the wide gulf between pre-war theory and the actual results achieved in four years of practice. In the early summer of 1940 the official experts were confident of producing speedily decisive results from their 'master-plan' of bombing Germany's war-making resources. Some 5,000 tons of bombs were dropped on them in that year. Equally confident predictions of an early collapse were made in 1941 when the British bombing force threw 23,000 tons on German targets, and again in 1942 when the cumulative weight of its blows rose to 37,000 tons. The outcome successively proved that the scale required to produce anything like a decisive effect must be much greater than had been conceived.

In 1943 the scale was increased in multiple ratio. The British bombing force alone dropped 135,000 tons on Germany, while the newly arrived American bombing force—which operated by day while the British struck by night—brought the total to over

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180,000 tons—five times that of the previous year's bombardment. The scale was once more multiplied in the early months of 1944, when the tonnage in a single day sometimes exceeded the total dropped in 1940. Yet expectations were again unfulfilled, and Germany carried on.

The explanation may be found in the natural fact that decisive results come sooner from sudden shocks than from long-drawn pressure. Shocks throw the opponent off his balance. Pressure allows him time to adjust himself to it. That military lesson is closely linked with the general experience of history that human beings have an almost infinite power of accommodation, to degradation of living conditions, so long as the process is gradual.

The inherent drawback to an air force as the prime means to victory is that, while *tactically* it is the most rapid in operation and sudden in shock, *strategically* it is less fitted to produce a swiftly decisive effect. With sufficient superiority, armies have sometimes been able to decide the issue of a campaign in a single battle, by overthrowing the opponent's main army. Fleets have been able to cripple the opposing fleet in a battle, thereby exposing the enemy's coast to invasion, while securing their own side's undisputed use of the sea. But air forces have not yet found a possible way of achieving such decisive effects. In any clash, the weaker side has more scope for evasion than a weaker fleet, and much more than a weaker army. Moreover, an air force operates by fractions, and is much less concentrated than an army or a fleet. Its ground targets, too, tend to be more dispersed.

An air force is a super-guerrilla instrument. It has thus a natural tendency to lead, strategically, to attrition warfare—the gradualness of which carries an ever-extending devastation and damaging after-effects. Theoretically, a superior air force should be able to produce a quick decision by paralysing the enemy's capital at one blow, and the other main centres in quick succession. In the case of small and virtually defenceless countries, there has been experience to support such a possibil-

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ity. But there is no guide as yet to the scale of air strength that would be needed to deliver a 'knock-out' blow to another Great Power. All we can tell is that the scale would have to be much greater than that of any air force yet conceived.

In May 1943 Mr. Churchill stated in Washington: 'Opinion is divided as to whether the use of air power could by itself bring about the collapse in Germany and Italy. The experiment is well worth trying as long as other measures are not excluded.' That announcement was followed by a great intensification of the bombing assault on German cities. After over nine months' trial it became clear that this method did not suffice. In the spring of 1944 there was a manifest change of aim. While the scale of bombing was raised to over 100,000 tons a month, a large proportion of it was now devoted to targets that promised to have a closer bearing, and early effect, on the military situation. War industrial bombing became secondary to definitely strategic bombing—in aid of, and preparation for, land operations. In this new concentration, the direct aim of crippling the enemy's rail communications was combined with the indirect aim of destroying the enemy's air force. At the start of the effort, in the middle of March, the American air chiefs committed themselves to the prediction that the air war in Europe would be decided in thirty to sixty days.

Here also results fell short of expectations. But the effect appeared to be greater than with the other method. The railways that supplied the German Army were dislocated sufficiently to impose a severe handicap on it by the time that the Allied armies invaded France, early in June, while the breaking of the bridges over the main rivers further restricted its counter-moves. No less important was the very marked limitation of air interference with the Allied landings. At the same time, the German Army's capacity to carry on under such handicaps exceeded expectations. When, at Caen, 5,000 tons were dropped in forty minutes on a sector less than three miles wide, this terrific blast paralysed the garrison of the forward defences, but it did not make a break-through possible. The course of the war

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has made it clear that while bombing can make a big contribution to the process of attrition, both in the military and in the industrial spheres, it does not suffice to produce a quick decision where the opponent is firm in morale and skilled in defence. Under such conditions, air power is more destructive than decisive. Its attack has proved to have more limitations than were generally recognized, and though unlimited in devastation when prolonged, this result may be disproportionately detrimental to post-war prospects.

It is clear, however, that air power has wrought a greater change in warfare than any previous development has done. It has permeated both land and sea warfare, transforming both, while fusing these separated spheres so far as to produce a triune conception of warfare. While the air force has not superseded the older forces, it is superimposed on them—and has taken the leading place, though not attaining sovereignty.

Air power has also emphasized the mechanical trend of warfare—both in the qualitative, and in the automatic sense. War experience increasingly demonstrates that men have a decreasing value compared with equipment, and that quantity counts for little unless it implies quantity of quality. In 1940 the value of the French bombing force was reduced almost to zero because most of its aircraft were too slow to have any chance of getting through the German fighter screen, and were thus powerless to interfere with the invading armies. A few months later, the Germans' prospect of invading England was frustrated because the great numerical superiority of their air force was cancelled out by the technical superiority, in speed and fire-power, of the British eight-gun fighters of the Spitfire and Hurricane types. Three years later, Germany's chances of checking the Allied bombing offensive were nullified at a crucial time by the way that the British night-bombing was reinforced by the day-bombing of the American Flying Fortresses, whose defensive armament and tactics became so powerful as to exact a crippling price from the German fighter force when and where it opposed them.

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Another significant factor of air warfare is the reduction in the number of combatants compared with land warfare. Although the total number of men required to maintain an air force in action is about equivalent to the strength of a great army, the number actively employed as air crews in the largest scale operations hitherto has rarely exceeded ten thousand, whereas a million or more have often been employed in a land offensive.

The qualitative factor was most clearly brought out in the land campaign which produced the downfall of France. The French reserves of trained man-power were larger than the German, but they were unable to put as many divisions in the field, while a dangerously high proportion of their divisions were inadequately equipped, especially in anti-tank weapons. Even so, the German victory was not really due to their superior number of effective divisions. The issue was decided by the rapid and deep penetration of the armoured divisions, whose advance far outstripped that of the mass. There were only ten of these, out of some 150 divisions altogether that the Germans deployed in the West—and thus formed a small pebble thrown from a large sling. Yet that pebble paralysed an opposing army that was in man-size a Goliath.

Thirteen months later, when the Germans invaded Russia, they had raised their number of armoured divisions to twenty-one—but this doubling of the number had been achieved by halving the number of tanks in each division. Their 'panzer divisions' now contained only one armoured regiment, comprising barely 200 tanks. The division had become a sling for this pebble, for it was made up of nearly 17,000 men and 3,000 unarmoured vehicles. In an objective view, it is more surprising that Germany once more gained a striking early success than that she failed to drive this home. The armoured forces, on which she again chiefly depended, were carrying too heavy a handicap—in their own deficiency coupled with the multiplication of anti-tank weapons. Germany had been lucky to beat France in 1940 with a dash of panzer divisions that were merely

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'spot-of-armour' divisions. She lost her chance of victory in 1941, by failure to achieve an adequate development of her principal instrument.

But it is clearer still that Germany would never have approached the possibility of victory, even in 1940, if her opponents had provided themselves with a defensive technique and defensive instruments comparable to what were developed generally in 1942. It would have been easier for them to obtain such a level earlier than for Germany to attain a level adequate for a decisive offensive—because the instruments required for defence were on the whole simpler than for attack, while, even in so far as they were similar, a smaller scale would have sufficed to cripple invasion than the invader himself needed to carry his offensive through to final success. Instead, the defending countries not only underrated the value of mechanical power, but misdirected their efforts by organizing their forces primarily for an offensive role that was bound to be beyond their resources in the early stages of a war. For that miscalculation, forfeit was paid twice over. For even those countries which survived initial defeats, and gained time to build up their resources, were then confronted by the developed power of modern defence—employed by the enemy to maintain his gains—and thus had to attain a much greater superiority of mechanical force than the aggressor had possessed before they could turn the tables. In consequence, the defeat of aggression took an inordinate time and cost to achieve.

While the far-reaching effects of a superiority in mechanical forces have not yet been fully grasped, this qualitative evolution in warfare is already being overtaken by developments of an automatic nature that foreshadow a revolution in warfare. In this respect, air forces have advanced further than land forces, because the uneven surface of the ground and the geographical restriction of routes impose a check on the extent to which automatic devices can replace the human element. Air operations, being free from such limitations, have become increasingly controlled by scientific apparatus.

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It did not require much foresight to see that the next stage would be the advent of a machine that could be automatically controlled throughout its course to the objective, and thus dispense with the need for a crew to man it. The most obvious form was a radio-directed machine. Such a machine, known as the Queen Bee, had been developed in pre-war years as a target plane for anti-aircraft guns. But its longer-range application to offensive purposes suffers the handicap of being susceptible to interference from radio counter-measures. The more promising line of development has thus been the automatic pilot, based on gyroscopic control—an extension, to the air, of the system long since embodied in the naval torpedo. This has resulted in the pilotless plane, or flying bomb. The rocket bomb carries still greater potentialities, both in destructive force and in range—through the exploitation of the stratosphere.

In a long view, these new weapons may be regarded as merely a further stage in the development of artillery—which constitutes, fundamentally, a means of striking opponents who are out of arm's reach. On this principle of classification, 'artillery' begins not with the discovery of gunpowder, but with the ancient engines of war, which themselves were only an extension of the technical development embodied in the bow and arrow. The start of the mechanical era really dates back to the invention of missile weapons—as an alternative to hand-to-hand fighting, and a means of overcoming its limitations. Indeed, it might well be argued that the fundamental idea inherent in the term 'fighting' became obsolescent at that moment. The significance of the missile, or projectile, was foreseen and expressed more than two thousand years ago by the Spartan king, Archidamus, who, on seeing a dart fired by a machine brought from Sicily, exclaimed: 'O Hercules, the valour of man is at an end.' But he was too long-sighted. The imperfections of mechanism have not only delayed the elimination of the human element, but even the recognition that its value was on the decline—gradually.

Some of the more recently introduced weapons have tended to postpone rather than accelerate such a recognition. The mas-

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sive development of artillery in the last war was palpably turning warfare into the semblance of a mincing-machine, of gigantic scale and absurdity, when the introduction of the aeroplane and the tank temporarily revived the value of human qualities. The tank, although a machine, was only suited to close-quarter action, being specifically designed for that purpose. The aeroplane also, in its earlier years, depended much more for its effect on the fighting qualities of its crew than did the heavier types of artillery.

Technically, a bigger stride in the 'impersonal' direction was made with the introduction of the special long-range gun which the Germans produced in 1918, to bombard Paris while their army was still seventy miles distant. Although its effect was very limited, it formed an historically important link in the chain of evolution from the ancient catapult to the flying bomb and the rocket bomb. Its range was sufficient to enable it to leap the gulf which had hitherto separated the fighting zone from the hinterland, and thus brought about a change in the habit of regarding artillery as primarily a tactical aid to armies, in their military operations. It became apparent that the gun could now be employed—as it had been occasionally used in sieges, and more frequently by navies—for direct menace to the civil will of the opposing people.

Aircraft, as they developed in range and bomb-carrying capacity, became more general agents of that same purpose. Their very lack of accuracy, compared with the gun of normal types, paved the way for a reversion to a barbaric mode of warfare. For industrial targets, being larger than military targets, were easier to hit—which provided a ground for preferring them. Moreover, if the aircraft failed to hit such targets, they could at least be counted on to spread terror among people in the neighbourhood. Inaccuracy of weapon-aim fostered inhumanity of war-aim. This trend of warfare, foreshadowed by the petty air-raids of the last war, was checked for a time by the post-war revulsion against such a conception, but so long as war-industrial targets were accepted as legitimate military

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objectives it could be no better than postponed. The natural desire of air force chiefs to prove the value of their service, in comparison with the others, formed a powerful incentive to maintain the principle of industrial bombing, and then to abandon any humane limitations that impeded its effectiveness. Moreover, the practice of bombing at night, though adopted for the security of the attacking force, tended to diminish the possibility of discrimination. When the attempt at precision-bombing eventually gave place to area-bombing, for greater effect, air warfare definitely assumed the character of an attack on the foundations of civilized life—carried out by a mechanical process of destroying cities. Yet the significance of the change was veiled by the gradualness of the process, as well as by the fact that the operative instruments still remained under the charge of human beings throughout their flight, while the fulfilment of their mission depended on the will and skill of those who manned them.

The flying bomb may tear away the veil of illusion that has so long obscured the reality of the change in warfare—from a fight to a process of destruction. Being palpably an ‘inhuman’ instrument, it creates the *feeling*—which counts more than a truth apprehended by reason—that war is no longer a matter of *fighting*. Thus its introduction on June 15, 1944, may come to be regarded as the start of a new era.

Mechanized warfare still left room for human qualities to play an important part in the issue. ‘Automatic warfare’ cancels them out, except in a passive form. Archidamus is at last being justified. Courage, skill and patriotism become shrinking assets. The most virile nation might not be able to withstand another, inferior to it in all natural qualities, if the latter had some decisively superior technical appliance.

This does not necessarily mean that the new scientific weapons will turn the balance definitely in favour of the offensive—and thus of aggression. They may be subject to inherent limitations and counter-developments that will curb their decisiveness, as has been demonstrated previously in the cases of the tank

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offensive and the bomber offensive. War experience teaches us that no new weapon proves so deadly in practice as in theory—a lesson which corresponds to the wider truth of human experience that nothing looks either so good or so bad in retrospect as it appeared in prospect. But while there is reason to doubt whether the new robot weapons will ensure a quick decision, it is probable that they will multiply the general destructiveness of war, and the extent of useless damage caused to all parties.

The advent of 'automatic warfare' should make plain the absurdity of warfare as a means of deciding nations' claims to superiority. It blows away romantic vapourings about the heroic virtues of war, utilized by aggressive and ambitious leaders to generate a military spirit among their people. They can no longer claim that war is any test of a people's fitness, or even of its national strength. Science has undermined the foundations of nationalism, at the very time when the spirit of nationalism is most rampant.

II

THE MANNER OF WARFARE

Changes in technique represent only one side of the problem presented by modern warfare. The damage produced by war has been increased not only by the multiplied power of weapons, but by the development of 'total warfare'. Although this term is of recent coinage, the conception dates back further, and developed before science produced weapons of such tremendous range and effect as to make its application a deadly danger to civilization.

The last war had the character of 'total warfare', with only differences of degree compared with the present practice. The conception was implicit in the idea of the 'Nation-in-Arms', which captured the military minds of Europe in the late nineteenth century, and still earlier in Clausewitz's theory of 'absolute warfare'. Clausewitz himself merely formulated what had already been expressed in practice by the leaders of the French Revolution, and Napoleon. They had introduced the system of conscripting the manhood of the nation that Prussia revived. They had turned kings' wars into peoples' wars. They had broken down the restraints that statesmanship had formerly applied to the methods of warfare, and the limits which it had observed from a shrewd sense of the mutually damaging effects of unlimited destruction. In passion, and in pillage, the French Revolutionary armies reverted to a pitch not far short of that seen in the Thirty Years War.

That earlier 'total' war of 1618-48 was the ghastly climax of the Wars of Religion which had marked the transition from the Middle Ages into modern times. The unrestrained violence of these ideological wars—European 'civil wars'—produced a scale of devastation that had not been paralleled since the relative

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peace of the Roman world, undermined by its own civil wars, collapsed under the successive impact of the barbaric hordes and the erosion of Viking raids. Significant lessons appear, and repeat themselves, in tracing the course of warfare from this time onwards.

Europe's emergence from the Dark Ages owed much to the way that the conquerors were subdued by the religion of the conquered, and absorbed the elements of their civilization. Another important factor was that the conquerors lost grip with the spread of their own expansion. The weakening of the central power, coupled with the need for a protection which this could not effectively supply, gave rise to the feudal system—which grew out of a blend of Roman and tribal practices, and was of itself of a dual nature: a system of land tenure, and a system of local defence. As the danger from external aggression declined, the danger of internal aggression increased, for feudalism naturally tended to foster internecine warfare. But, since all the participants were formally Christian, the Church was able to exert a moral authority towards limiting the extent and destructiveness of these conflicts.

In pursuance of this aim, it developed the two-branched 'Truce of God'. The *pax ecclesiae* or *Dei*, introduced at the end of the tenth century, was designed to ensure immunity for non-combatants and their property. The *treuga Dei*, introduced early in the eleventh century, started with a prohibition of private warfare during the week-end. It was later extended to last from Wednesday evening until Monday morning, and completely during the whole seasons of Lent and Advent, as well as during numerous feasts. While the Truce was often violated, it had a valuable effect in reducing the amount of violence and limiting its bounds. A supplement to these restrictions was found in the creation of an outlet for human pugnacity—the crusades against the Mohammedans.

These measures helped to tide over a perilous period until, by the thirteenth century, the kings had gradually regained control

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over the feudal lords. The provisions of the Truce then came to be adopted in the royal laws, and were subsequently extended into a prohibition of all private wars. While the gain was partially offset by the fuller opportunity created for wars between kings, there was on balance a decrease of warfare, and a continuance of some of the mitigating conditions that had developed—under the combined influence produced by the Church's rules, by the different yet convergent growth of the code of chivalry, and by the economic checks of the feudal system. Non-combatants on the whole enjoyed more immunity than in earlier times. Among combatants, the custom of ransom fostered the habit of taking prisoners in place of massacre, and even in its limited application to the propertied classes paved the way for the establishment of a general custom of sparing the lives of the defeated side. In numerous other ways the code of chivalry, for all its faults, tended to ameliorate warfare by formalizing it, while its development of the tournament provided an alternative outlet for pugnacity.

At the same time the feudal system itself put a brake on the war-making power of kings, since it limited the obligation of vassals to a short period of service—forty days as a general rule. If kings wanted to conduct and maintain campaigns of aggression, they had to pay for the pleasure. The difficulty of raising sufficient money was increased by the Church's veto on usury. Moreover, the development of protective armour, and the advantage it gave to those who could afford it, restricted the numbers that were worth taking, and paying, on a distant offensive campaign. As a combined result, invading forces tended to be small compared with the forces of the defender, who could not only call on the maximum number of his vassals' men-at-arms to meet a defensive emergency, but could also make some use of the more poorly equipped feudal levies in such circumstances. The handicap on the invader was increased by the development and multiplication of defensive fortifications, which tended to spin out the length of a war. Thus the scales were weighted against the ultimate success of aggression. The

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drawbacks became in some degree a check on war, especially among Continental states.

The deterrent influence of these combined factors might have been made more effective if the influence of the Church in general, and the Papacy in particular, had not been weakened by the pursuit of temporal power and by internal corruption. A more direct ill-effect came from the subservience to the French crown that was shown by a series of French popes. It was emphasized early in the fourteenth century when the Gascon Clement V took the decisive step of establishing his residence at Avignon, instead of going to Rome. This identification with France prejudiced the peace-making efforts of Pope Benedict XII to settle the dispute between King Edward III of England and King Philip VI of France which developed into the Hundred Years War. The subsequent split in the Papacy, which produced rival popes in Rome and Avignon, diminished any chance that the Church might have had of checking the brutalities of that struggle and the spreading misery it caused. This was not confined to the actual theatre of war, for many of the mercenary troops that the English kings employed went on from plundering France to become a European pest. But a large proportion soon found fresh employment at home in the civil Wars of the Roses, and the continental market for mercenaries was captured by the Germans and the French, followed by the Swiss.

Yet this period also saw a new limitation of the brutality of warfare. It developed in Italy, and is the more significant because the rivalry of the Italian city-states was deepened by a bitter social struggle. Moreover, the conflict between the progressive and conservative interests represented by the Guelph and Ghibelline parties was intensified by their violently divergent ideologies. These civil wars were fatal to the budding parliamentary system of the city-states, establishing a single-party domination by one side or the other, which led in turn to one-man rule. But though the prolonged struggle produced a crop of military despots, it also produced such growing war-weari-

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ness as to create a limiting trend in the manner of warfare. The despots themselves found it wise to curb the pursuit of their ambitions for conquest, and the demands on their people. Conscription was replaced by the employment of mercenary soldiers, whose cost became another limiting factor. These professional armies developed a custom of war by which the victors spared the lives of the vanquished, and a practice of war that economized lives by an increasing substitution of manœuvre for costly assault. For a time their practice was less restrained in dealing with civilians and property, but improved as the states that employed them also came to see the mutual advantage of putting a check on pillage and devastation—in view of the uncertainty of war and its changes of fortune. This tendency for reason to restrain passion was fostered by the intellectual impetus of the Renaissance.

Under this combination of influences the ‘condottieri’, or captains of mercenaries, were instrumental in reviving the theoretical study of war and in evolving a humane code of war. As Machiavelli remarked—‘The lives of the defeated are nearly always spared. They do not remain prisoners for long, and their release is very easily obtained. A town may rebel a score of times; it is never destroyed. The inhabitants retain the whole of their property; all they have to fear is that they will be made to pay a levy.’

The growing tendency to limit the degree of violence, and reduce the ravages of war for mutual convenience, had a profound psychological effect. Passions were not cured, but were kept under control. Wars did not disappear, but their sting was drawn. Italy became increasingly prosperous and exceptionally peaceful. Her culture spread in widening circles through Europe, though not fast enough for her own security.

That relatively happy state was rudely disturbed by the French invasion of 1494 launched by Charles VIII in a spirit of glory-seeking adventure. With the aid of thirty-six brass cannon he broke up not only the Italians’ battle-order but the better order and restraint they had introduced into the practice of war.

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The echo of his artillery travelled far beyond the battlefield, and produced a shattering moral effect throughout Italy. This was intensified by the violence of his methods, which were subsequently carried to a greater extreme in the series of Spanish invasions, made as a counter to the French. Pillage and the massacre of civilians again became common. The classical sense of 'moderation' that had been growing in Italian soil was soon uprooted.

The strain on European civilization was multiplied by the Wars of Religion, which arose from the Reformation, though mingled with political ambitions. The mixture of religious passion with the new spirit of nationalism formed a highly explosive compound. Starting in the middle of the sixteenth century, these wars persisted far into the seventeenth, spreading devastation through many lands. Religious fervour provided both an incentive to and an excuse for barbarous behaviour and unlimited spoliation. Worst of all was the Thirty Years War, during which more than half the population of the German states perished, and their conditions of life were so degraded as, in the judgment of some historians, to put back their civilized development the equivalent of two centuries' normal growth.

These excesses of violence led to such a widespread revulsion as to produce a new limitation in the practice of wars. This had been foreshadowed by Grotius's great work *De Jure Belli et Pacis* of 1625, the prime source of modern international law, which took as its keynote the principle of moderation in the treatment of enemies, of non-combatants, and of conquered countries. But the good sense inculcated by Grotius and other writers had little effect until after 1648, when the Thirty Years War had run its course, and by its futility as well as its barbarity provided a striking practical demonstration that unlimited warfare is bad for all parties concerned.

This sharpened sense of reality produced a clearer appreciation of the reasonable as well as the humane arguments for moderation in warfare. Although the Church had no longer the unity required to maintain a common moral code, an effective

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substitute was found in the respect for reason that was inspired by a common culture based on the classics. Religion, once its universality was disrupted, had heated the fires of hatred and inflamed the passions of war, thereby forfeiting its power to maintain an international morality. But the influential classes in every nation had been brought up on the writings of the classical thinkers, who had taught the value of reasonableness and restraint, expressed in good manners. The Wars of Religion had created too deep a cleavage for religion to bridge, but reason stepped into the breach, and erected a code of manners to fill the gap. This actually sufficed for the salvation of civilization from the imminent risk of engulfment.

In the century and a half that followed the Thirty Years War, the growth of a tacit limitation of warfare became more and more evident. A bad exception to the rule occurred when the French marshals devastated the Palatinate in 1689, and another when Marlborough devastated Bavaria in 1704. But these cases were early in the period, and the general indignation they created—for even Marlborough's allies protested against the brutality of such a method of exerting pressure—is evidence of a growing sense of humanity.

The thought of the period was nourished on the Graeco-Roman classics, interpreted by Erasmus and Grotius, but had in some respects a closer affinity with the Confucian way of life and gospel of the 'golden mean' which, in a similar time of troubles, had brought the more ancient Chinese civilization back from the edge of the abyss. In the course of the eighteenth century—the 'Age of Reason'—the parallel became increasingly marked. Experience of the endless violence to which religious enthusiasm had led was a potent factor in developing an attitude of restraint and a sense of doubt—which together amounted to something approaching tolerance. Men had been made acutely aware of the dangers of 'faith without works'. They came to feel that behaviour mattered more than belief, and customs more than creeds, in making earthly life tolerable and human relations workable. Like the Confucians, they felt

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that the idea of becoming a 'gentleman' according to a pattern that was reasonably acceptable was a more practicable ideal than becoming a 'good man' in the spiritual sense. Being on a lower level, it required a more moderate climb, yet was a step towards the higher level, while also an urgent necessity to get out of the quicksands in which civilization was sinking.

Reasonableness became the creed of the eighteenth century, as a happy mean between faith and logic, and found outward expression in a code of good manners. While this formalized mode of behaviour was often more formal than good, and covered many flaws, it produced a real improvement in conduct, as well as in many other ways. The effects can be traced in art, literature, architecture and gardening—in all of which spheres the harmonious blend of reasonableness with orderliness, of strength with restraint, of adventure with symmetry, produced an exceptional grace. Living itself became an art. So, naturally, did war. Here the effect was widest. Being raised to the level of an art, war became an activity to be executed with elegance of manner, preference of manœuvre for massacre, and moderation of object. This combination of artistry, reasonableness, and realism proved better for humanity, in limiting the ill-effects of war, than any of the attempts to prevent war—and block up the outlet for pugnacity and power-ambition.

It is often said that eighteenth-century wars were 'limited' because they were waged for aims that involved no fundamental issues of principle, and thus aroused no violent passions. Such a view is refuted by the conditions of the great war with which the century opened—when the struggle against Louis XIV's threat to dominate Europe was intensified by the Protestant nations' deep-rooted fear of the religious oppression which, if victorious, his 'Most Catholic Majesty' was expected to re-establish. The fear of Catholicism at that time was comparable to the fear of Fascism in our time. Later in the century came the wars provoked by Frederick the Great's unscrupulous acquisitiveness, when Britain supported the aggressor, and the American war to secure independence from Britain's control. These

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conflicts were far from being passionless. Yet the rules were kept to a surprising extent. A general realization of the greater evils likely to arise from extremes of violence was reinforced by the effect of a maturing habit of limitation.

Another probable influence for good was the absence of any radical change in the means of warfare during this period. For experience indicates that an increase of savagery in warfare, and consequent danger to civilization, is apt to follow new developments—technical, political or ideological—which unsettle the existing order and its customs. The most cataclysmic example was at the end of the Middle Ages, when European civilization suffered a triple ‘earthquake’ shock from the invention of cannon, the upsurge of nationalism, and the split in religion. The lesson has been freshly emphasized in our own time.

The eighteenth century view of war was well expressed in Vattel’s famous work of 1758, *Le droit des gens, ou principes de la loi naturelle*. War is an evil, but an inevitable one in a world composed of independent sovereign states. For when two such states disagree, and each believes that its case is just, there is no superior law or judge to decide the issue. They resort to war as a substitute for justice, both accepting the convention that the scales of battle shall decide who is right. But as wars are an evil they should be limited as far as possible. They should decide the questions at issue without ruining the adversaries, and without leaving such legacies of hatred and vengefulness as to wreck the subsequent chances of peace. The function of war is to settle disputes. Reason must, therefore, intervene to curb such excesses of violence as make peace impossible after the war. It should check the successful side from taking undue advantage of its success, for what is achieved by force is transitory, and victory is a precarious accident. If too heavy a burden is laid on the defeated side, there will be no peace, but only a truce, and the conflict will be pursued to the point of mutual extermination.

Logically, any government waging a war that it believes just is justified in doing whatever seems necessary for victory. But, as Vattel points out, far more evil than good is achieved by

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carrying war, and the belief in one's own rightness, to their logical conclusion. 'The decision of the rights at issue will not be advanced thereby, and the contest will become more cruel, more disastrous in its effects, and more difficult of termination.' The same principle of restraint should apply to the means used in war. If, for example, you employ poisoned weapons 'your enemy will do the same, and thus without gaining any advantage over him, you will merely have added to the cruelties and horrors of the war'. Vattel even advises that, in their pronouncements on the war, rulers 'should refrain from all offensive expressions which would indicate sentiments of hatred, animosity and bitterness, and are only calculated to excite similar sentiments in the enemy's hearts'. Dignity pays, by enhancing prestige, whereas violent denunciations make a satisfactory settlement more difficult. In this respect he contrasts the abusive epithets used by the Homeric heroes, and by medieval princes, with the more dignified manners of the eighteenth century, and emphasizes that such purposeful restraint is no 'mere idle politeness'.

As for the peace settlement itself, moderation in its terms is the best assurance of its fulfilment. If the conqueror forces a nation 'to accept hard, disgraceful, and unendurable terms of peace, necessity may constrain the nation to submit to them'. 'But this appearance of peace is not real peace; it is oppression, which the nation endures so long as it lacks the means to free itself; it is a yoke which men of spirit will throw off upon the first favourable opportunity.' This was certainly a prophetic anticipation of the result of the peace terms that were imposed on Prussia in 1807 by Napoleon, and of those that, with better cause but no better sense, were imposed on Germany in 1919.

The practice of war in the eighteenth century sometimes fell short of Vattel's principles, but its essential moderation is apparent in his own remark that war had come to be confined to the regular armies, and that the people, both peasantry and townsfolk, had 'nothing to fear from the sword of the enemy', while 'their property rights are even held sacred'. 'Such treat-

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ment is highly commendable and worthy of nations which boast of their civilization; it is even of advantage to the enemy. A general who protects unarmed inhabitants, who keeps his soldiers under strict discipline, and who protects the (invaded) country, is enabled to support his army without trouble, and is spared many evils and dangers.' Pillage had been gradually replaced by the more regulated practice of levying contributions, and in the eighteenth century such demands became much milder or were further restricted to the local requisitioning of provisions for the invading forces. In many cases, payment was made for such requisitions. The Austrian armies were particularly restrained, even to the point of handicapping their own operations by extreme scrupulousness in abstaining from any demands on the civil population. The most remarkable example of all perhaps was when units of the Prussian army, retreating after its defeat by Napoleon at Jena, endured bitter cold when bivouacking at night rather than lay hands on nearby piles of wood, having been accustomed to regard any seizure of private property as 'robbery' contrary to their military code.

Another 'gentle' feature of eighteenth-century warfare was the mutual respect paid to military hospitals and their inmates. By custom or agreement, hospital staffs were usually treated as non-belligerents, while the sick and wounded left behind in territory overrun by the other side were allowed to go home when they had recovered sufficiently to travel. In this matter the original Geneva Convention of 1864 was more rigorous than the practice of the previous century, since it embodied the rule that the enemy's sick and wounded could be detained as prisoners of war.

In the making of peace, as in the waging of war, the practice of the eighteenth century approached closely to the principles defined by Vattel. One result, as he pointed out, was that nations were encouraged to sue for peace before they were 'reduced to the last extremity', thus curtailing the devastation and loss, for both sides. A further result was that such a negotiated peace tended to have more binding force in its promises than a peace

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dictated by the victor. For the nation which bid for peace did so of its own will, and, if it accepted the terms proposed by the other side, was in the position of 'freely choosing' to agree to them—instead of being helpless to continue the struggle. It was thus less inclined to feel resentment, and more inclined to observe the treaty conditions. In contrast, the nation that is forced to accept a peace imposed after complete defeat naturally feels no obligation to respect the treaty a moment longer than it needs.

The improvement made during the eighteenth century in the customs of war, and in reducing its evils, forms one of the great achievements of civilization. That can be even better appreciated when looking back from the present than it was by contemporary minds. Gradually, during this period, the violence of warfare was being curbed by the growth of more reasonable conceptions and more humane customs. These in turn were being developed into accepted rules of warfare, with strengthened restraining power. The improvement between 1648 and 1788 was so remarkable as to open up a prospect that the progressive limitation of war, by its formalization, might pave the way for its elimination.

This code of limitations—embankments for the protection of civilization against the flooding passions of war—was broken down in the wars of the French Revolution. While the breaches were enlarged by the waves of the Revolution, they were opened by the action of its leaders. Yet that fatal sabotage, though wilful, was fundamentally unwitting—due not to bad intentions but to shallow understanding. The decisive agents were new men, and young men. Seeing clearly the defects of the old regime, and eager to replace it by a better state, they failed to realize how much had been done under that regime in paving the way for progress. As always in history, the efforts of the reformers had been hindered by purblind conservatives, who dug their own graves by provoking a more violent issue out of selfishness or incapacity to change. As almost always in history, the realistic reformers were ousted by the idealistic extremists,

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and these in turn by the ambitious exploiters of revolutionary crises. The moderation that is based on far-sighted realism is at a discount in times of violence, but so also is the more usual and superficial kind that merely reposes on well-meaning sentiments. The men of good intentions who pitch expectations too high are commonly swept on by the wave they have raised, and then swept away by men more reckless and more ruthless.

The impatience which characterized the Revolution at home was carried into a wider field when the new Republic found itself surrounded by hostile neighbours. Under the combined influence of its dreams and its fears it launched forth on a crusade, inspired by the idea that attack was the best defence. The war that was begun partly in self-defence and partly as a missionary enterprise for the spread of 'liberty' developed into a war of ever-expanding aggression for the subjection of all nations to French imperialism. The struggle continued for twenty-three years before it was ended by the final collapse of the European domination which Napoleon Bonaparte, the chief exploiter of the Revolution, had created in the form of the Napoleonic Empire.

A decisive step in the fateful process was the decree of July 1792 whereby every able-bodied Frenchman was made liable for military service. This decree, issued under the threat of invasion, marked a reversal of the attitude which had led the Assembly in 1789, still faithful to the Revolution's first principle of 'liberty', to reject Dubois-Crancé's scheme for compulsory military service as in the Greek and Roman republics—based on the argument that 'every citizen ought to be a soldier and every soldier a citizen'. Although panic produced the legal establishment of the compulsory principle in 1792, the practical establishment of conscription was a piecemeal process. In the first stage it was only applied to men of whom the local communes wished to be rid. This accorded with the shrewd eighteenth-century view that military service formed a good outlet for hot-blooded youths who were liable to be a nuisance at home, while they were also by nature the best kind of fighting material. Then, early in

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1793, when the Republic added Britain to the list of its enemies, shortage of effectives led to a decree for the compulsory levy of half a million men. This was met by widespread evasion and a revolt in the Vendée. The disasters of that summer caused a fresh panic, and a cry for the *Levée en masse*, which secured the adoption of Carnot's scheme for making all young men between eighteen and twenty-five years of age liable to conscription. This met with less resistance, since it affected only a minority who did not count for much politically, while many young men were now ready to welcome military service as a means of escape from hunger or the political 'Terror', as well as for the prospect of adventure or booty. This last incentive now came to be proclaimed to the armies as a deliberate inducement—the crusade for liberty changing rapidly into a pursuit of plunder.

The change was signally demonstrated in Napoleon Bonaparte's Italian campaign of 1796-7. At the outset he sounded the keynote by promising to lead his troops into the fertile plains of Italy to reap 'riches' as well as 'honour and glory'. Descending into the plains, he not only levied heavy contributions on the cities which he occupied, but plundered churches and pawn-broking offices—where families were in the habit of depositing their jewels and money for safe custody. In this practice of large-scale looting, Bonaparte was spurred on by the Directory in Paris, which had adopted the working principle of making the war support the war. Next, he was directed to march into central Italy, where he not only violated the territory of neutral states, but despoiled them of their movable property. These depredations were now extended to the seizure of pictures and other works of art. It would appear that he himself inspired the instructions he received to carry out this particular kind of pillage. The way they were expressed put a polish on pillage—'The Executive Directory is sure, Citizen General, that you consider the glory of the arts to be linked with that of the armies you command. Italy in large measure owes to them her wealth and fame, but the time has arrived when their sway should pass to France to strengthen and embellish the rule of liberty. Our

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National Museum ought to contain the most celebrated examples of all the arts, and you will not neglect to enrich it with all that it may expect from the conquests of the Army of Italy and from those of the future. This glorious campaign, while making it possible for the Republic to give peace to her enemies, should also repair the ravages of vandalism within herself and add to the brilliance of her military trophies the beneficent and consoling charms of the arts.' Armed robbery has rarely been so finely varnished—evidence that the Revolution had not entirely lost the manners of the old regime!

The descent of Bonaparte's army into peaceful and prosperous Italy repeated the shock of the French invasion of 1494, almost exactly three hundred years earlier, but this time the ruin was worse, materially and morally. Moreover, the invaders, to serve their purposes, sought to plant their revolutionary 'New Order' in a land so acclimatized to a traditional order that sudden adaptation was impossible, and the result could only be an impotent disorder. While propagating the gospel of 'Liberty', their policy made it clear that this only meant self-government subject to the dictates of the French authorities, and that the new republics would merely be puppet states. This situation had so little appeal that the revolutionary disciples of France revolted against her regime, and were forcibly suppressed by their liberators. Impoverished Italy became, and remained, a festering political sore.

The damaging effects on Italian civilization were, however, exceeded by the immediate evil effects on the prospect that the French Revolution might, on balance, advance human progress. The ultimate effects on European civilization have proved even worse. For it was here, above all, that the embankments against a new flood of barbarism were so badly breached that they were never adequately repaired.

The supreme error of this adventure in Italy was that it created conditions which frustrated its own object, and led the new leaders of France on to further adventures. Pursuing a mirage, they became lost in a desert. That mirage arose from

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their dream that by a dazzling offensive crowned by decisive military victory they would secure a peace both 'glorious' and 'lasting'. As the great Italian historian, Ferrero, has pointed out—'A glorious peace is one which impresses, excites, and wins over public opinion; a lasting peace is one which brings a solution that is better for the victor, but acceptable to the vanquished. Between the two adjectives there is no connection—in fact, there is often a contradiction. The history of France up to 1814 was to be a superhuman and sterile effort to fuse these two contradictory adjectives—so easily joined together by the Directory—into a permanent reality. The glorious peace lasted only an instant each time and a lasting peace was not achieved until Europe had resigned herself to accept a treaty that was considered to be without glory by all the signatories.' And again—'Everything can be made use of in war—fire and steel, lies and truth, fury and cunning, passion and intelligence, even madness and crime; but to make peace, real peace that is to be final and lasting, intelligence is needed. All the rest is useless, if not actually harmful, particularly passion. The eighteenth century had discovered this truth beneath the misleading externals of life that hide it. Vattel had so great a fear of the effects of passion that he forbade belligerents to believe in the justice of their cause. If two enemies go to war in the belief that they are defending right and justice against a foe who respects nothing, they will hate each other and fight so furiously that they will not agree to any compromise. But since 1792 these wise doctrines have been neglected, and the wars of policy of the eighteenth century have been gradually transformed into fiery monsters by two passions unknown to the *Ancien Régime*—hatred and fear. . . . Hatred and mistrust inflamed political considerations in both camps and gradually everything became affected, diplomacy as well as strategy, until the combatants no longer knew why they were fighting. They fought because they hated each other, and they hated each other because they were fighting.'

The mixture of doctrinal fanaticism and mob violence which

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produced 'the Terror' at home was, at the outset of the wars, reproduced in the field, so that the early campaigns developed a resemblance to the sixteenth- and seventeenth-century Wars of Religion. Before battle, the passions of the soldiers were stoked up by demagogic oratory and other methods of fomenting hatred, so carefully organized as to foreshadow much of the technique of modern war propaganda. This resulted in many violations of the rules of war. In the fury that followed the declaration of war on England, the National Convention even issued decrees that no quarter was to be given to English troops—though the French troops in general ignored such 'boomerang' orders. After the initial frenzy had subsided, the behaviour of the soldiers towards their fellows in the opposing armies returned to the more humane level that had been established by earlier custom, but there was no full recovery of the former habits of restraint towards civilian life and property. Pillage and devastation remained frequent accompaniments of the march of armies. Moreover, such revivals proved infectious. The Austrian army in its retreat from Italy ransacked villages, burned homes, and cut down orchards. Wellington's army in the Peninsular War broke loose from control on various occasions, and committed outrages much worse than the looting to which it was commonly addicted. In sum, there was a general lowering of the soldierly code during these wars.

When Napoleon was overthrown in 1814, the atmosphere was heated by over twenty years of fierce and devastating war, and by the memory of several broken peace treaties that provided brief interludes in the struggle. It was fortunate for the immediate future of Europe that, at this crucial moment, the making of peace was in the hands of a few men who had been bred in the older tradition of long-sighted statesmanship, and who were also, by political circumstances as well as by nature, little influenced by the pressure of mass emotions. Ironically, yet most practically, it was Talleyrand, a statesman of defeated France, who mainly designed the basis of the peace settlement—on the principle of restoring governments that would be

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recognized by the people as legitimate—and persuaded the representatives of the victorious powers that it offered the most promising way of restoring order throughout a distracted Continent. Their good sense, in response, was shown in the moderation of their terms for France. The legitimate heir of the former Bourbon monarchy was put back on the throne, accompanied by a constitution of English pattern. This having been settled, no indemnity was demanded of France, and her pre-war territory was left undiminished.

The following year, Napoleon escaped from Elba, and the French rallied to him again. Yet even then, after his renewed and final overthrow at Waterloo, the British Government successfully checked the urge of its Allies to punish France. The peace terms were made only a trifle more severe. As H. A. L. Fisher remarks, in his *History of Europe*, Wellington and Castlereagh saw that ‘nothing would be more certainly calculated to undermine the authority of the Bourbons than a crippling loss of territory’. The best testimony to their sagacity, and Talleyrand’s, was that half a century passed before there was another serious war in Europe.

Even so, general agreement to the principle of moderation was secured only after much argument, and at the price of several concessions to greedy appetite. These appeasements contained the seeds of future wars. The first was in regard to Russia’s desire to possess Poland. That unfortunate ‘pancake’ country had been swallowed up in three successive three-fold bites by the concerted action of her powerful neighbours, Russia, Prussia, and Austria. Napoleon, after his defeat of Prussia and Austria, had encouraged the Poles to hope that he would revive their independence, and actually constructed a puppet state out of the Prussian and Austrian portions—as a fresh reservoir of recruits for his army. After Napoleon’s fall, the Russians wanted to add this to their own portion.

Castlereagh pointed out that this further expansion westwards would place Russia threateningly close to the capitals of Prussia and Austria, prophesying that it would ‘plant the seeds

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of another war'. He suggested that if the Tsar Alexander were inspired, as he professed, by a sense of moral duty to ameliorate the conditions of the Poles, then 'let this amelioration be carried out according to the high and liberal principle of re-establishing them as a truly independent nation, rather than transforming two-thirds of it into a formidable military advantage in the hands of a single power'.

The Tsar, however, gained the agreement of Prussia by supporting her desire to swallow the Kingdom of Saxony. Castle-reagh himself had been willing to concede this claim, despite Talleyrand's warnings, but his attitude stiffened in view of Austria's objections and Russia's overbearing manner. The dispute brought the coalition to the verge of disruption, and went so far as to produce a secret treaty of alliance between Austria, Britain, *and* France to uphold their conception of the peace settlement. But although this implied that they were ready to oppose Russia's ambitions even to the point of war, neither Austria nor Britain was disposed to risk such a consequence. The secret treaty was felt to be an insurance against a future Russian menace rather than a demand for an immediate stand. Thus both agreed on a compromise by which only two-thirds of Saxony was taken by Prussia, while Russia's absorption of the bulk of Poland was given a more pleasing appearance by constituting it as a separate though dependent state under the Russian crown. Fifteen years later, after a revolt, it was definitely incorporated in Russia.

Another fateful step was that by which the Rhineland was placed under Prussia. This decision was instigated by Britain, partly as an inducement to moderate Prussia's desire for Saxony by appeasing her appetite in another way, and partly as a curb on any revival of French imperialism and aggression. British statesmen did not look far enough ahead to foresee the union of all Germany under Prussia's dominion, and the rise of German imperialism.

The freedom from major wars which Europe enjoyed for a long spell, after Napoleon's overthrow, brought a prospect of

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resuming the reasonable trend of the eighteenth century. Indeed, this period produced one of the most remarkable examples of humane limitations in warfare. In 1832, after Belgium had separated from Holland with the approval of the Great Powers, the Dutch held on to Antwerp, whereupon France and Britain jointly intervened to eject them. When a French army under Marshal Gérard arrived on the outskirts of Antwerp, the Dutch Commander, General Chassé, offered to confine his artillery fire to the open stretches of the approach if the French commander would agree to keep his attacks within these limits. The offer was accepted and the conditions were strictly observed by both sides. In the outcome, the military issue was decided at least as clearly and as quickly as would have been probable in a more indiscriminate struggle, and yet without any damage to civilians or houses. A more general, though less striking, advance of humane conceptions was registered in the Geneva Conventions of 1864 and 1906, which dealt mainly with the protection of the wounded, and the Hague Conventions of 1899 and 1907, which covered a wider field.

This current of progress, however, was countered by a series of factors which cumulatively influenced the prospect for the worse.

The first was created by the ultra-conservative swing of Britain's three great partners in the victorious alliance, who combined to form the Tsar's mystical 'Holy Alliance' which the British Government, with more realism, refused to join. The efforts of this combination of autocracies to suppress all liberal ideas fostered the revival of violently revolutionary movements—with the natural consequence that one or other extreme was likely to prevail; that the apparently opposing extremes became more alike in practice; and that conflicts tended to become more immoderate in aim and method.

A second factor was the romantic reaction from the depressing aftermath of the peace that followed the long struggle to liberate Europe from Napoleon. In the natural course of things

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the troubles that accompanied the general state of exhaustion were blamed on the rebuilders of the peace, not on the war that had caused the chaos. This reaction produced a tendency to idealize Napoleon, both as a heroic soldier figure who had defied overwhelming odds, and as a benevolent statesman under whom Europe might have become an earthly paradise if his 'new order' had not been overthrown. Poets, painters and historical writers contributed to this process of posthumous glorification, which gained fresh impetus after 1840, when his ashes were brought back to Europe and magnificently enshrined in the Invalides. The Napoleonic Legend was the Phoenix which arose from those ashes.

A third factor was the growth of a new theory of war which embodied all the features of Revolutionary-Napoleonic practice that were most dangerous to civilization. The theory was originally formulated by a metaphysically-minded soldier who had been on the opposite side to Napoleon. This was Carl von Clausewitz, a Prussian of Polish origin, who had served in the Prussian Army and then in the Russian. Soon after Waterloo, he became Director of the Prussian War School. Upon his death in 1830, from cholera, his writings were found in sealed packets with a warning note that they comprised 'a mass of conceptions not brought into form . . . and open to endless misconceptions'. The note went on, however, to claim that they contained 'some leading ideas which may produce a revolution in the theory of war'. Both prophecies were fulfilled.

Clausewitz's writings were full of profound thought, but were too profound for most of his military readers, who have been apt to catch hold of the sharply pointed phrases that appeared on the surface, without regard to his more abstrusely worded qualifications, and without going deep enough to grasp the real trend of his thought—which often moved round in a direction counter to the surface current. This contrary turn is to be found underlying the idea that has had the most fatal effects—that of 'absolute' war. In subsequent generations, soldiers and statesmen have blindly followed the unlimited prin-

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ciple suggested in his striking premise—'To introduce into the philosophy of war a principle of moderation would be absurd. War is an act of violence pursued to the utmost.' Misunderstanding his metaphysical course of argument, they skipped over his explanation that 'reasoning in the abstract, the mind cannot stop short of an extreme', and failed to note his warning—'But everything takes a different shape when we pass from abstractions to reality'. Worse still they disregarded his conclusion that, if war were pursued to the logical extreme, 'the means would lose all relation to the end, and in most cases this aim at an extreme effort would be wrecked by the opposing weight of forces within itself'. Unlimited exertions bring victorious nations to the point of self-exhaustion and self-frustration. For such unmeasured expenditure of material resources and moral energy is liable to cause the bankruptcy of policy, and the forfeiture of any good prospect from the peace. It carries into warfare the primitive drives of an impassioned mob, brushing statesmanship aside.

The idea of unlimited effort was hitched on to that of unlimited aim—of absolute victory. Here, likewise, Clausewitz's disciples were led astray by his argument that 'in theory, the complete disarming or overthrow of the enemy must always be the aim of warfare'. Struck by its logical simplicity, they converted a theoretical point into a dogma. They failed to note his qualifying comment that such absolute victory 'is rarely attained in practice and is not a condition necessary for peace'. Through unquestioning belief in this dogma, and the reckless use of all possible resources, it has since been attained in practice more frequently—but with complete disregard for the consequences, especially the destructive effect on the subsequent state of peace.

The spread of Clausewitz's vogue owed much to the fact, fateful for humanity, that one of his pupils, Moltke, became the director of Prussia's triumphant campaigns of 1866 and 1870—wherein victory was quickly gained and peace made not too difficult, by Bismarck's combination of cunning and modera-

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tion in policy. Both Bismarck and Moltke had appreciated Clausewitz's qualifying remarks. But their discrimination was the exception, not the rule. The military world in general jumped to a simpler conclusion. The Prussian Army had been nourished on Clausewitz; therefore the main points of his doctrine must be true—in their more obvious meaning. The soldiers of all countries were quick to swallow the new gospel; few were capable of digesting it. The political world, which had lost touch with the study of war as warfare became more professionalized, was content to follow the soldiers' interpretation of Clausewitzian doctrine—with devastating results. That doctrine, accepted without understanding, largely influenced the causation and the character of the First World War. Thereby it led on, all too logically, to the Second World War which, as can now be seen, was the natural sequel to the economic and psychological conditions produced by the first.

Another fateful factor, closely linked with Clausewitz's work, was the perpetuation of conscription. In France, it was thrown overboard as soon as Napoleon fell, for its operation had caused widespread disturbance, and the French people bitterly realized how it had been used to maintain the imperial wars of conquest in which their blood was drained away. They had been bled white, not only in a physical but in a political sense. One of the main terms in the new constitution drawn up was the abolition of conscription. But the system was preserved in Prussia. There it had been adopted after her defeat in 1806, since it offered a means of evading Napoleon's drastic peace conditions in restricting the size of her army; by a rapid turnover of short-service drafts, Prussia was able to build up large reserves ready for the war of liberation. In propagating the scheme, and in winning public approval for the new principle that citizenship carried the obligation of soldiership, the military reformers made subtle use of the political reformers, who were imbued with the ideals of the French Revolution. The former wooed public opinion by equating democracy with conscription, though they had no desire to see democracy become

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effective except as a useful means of feeding men into the war-machine.

The military reformers were sincere patriots, but they were not unmoved by self-interest. The expansion of the army that would come from conscription, and war, also carried the only promise of promotion. Clausewitz himself, who was one of the reformers, could not afford to marry without promotion, and in a letter of 1806 to his betrothed, wrote—‘My country needs the war and—let us admit openly—only war can bring me to the happy goal.’ When peace came, the professional soldiers were anxious to maintain the system that had helped to fulfil both their national and personal hopes, and the Prussian people were the more easily persuaded to accept its continuance since it was associated in their minds—unlike the French people’s—with liberation from Napoleon’s tyranny. The Prussian Army Law adopted soon after Napoleon’s fall was based on the rule of conscription for all men between seventeen and fifty. Although the system was not fully applied in practice, it was henceforth established as a principle.

Its fuller development was fostered by the trend of Clausewitz’s technical conclusions. Here, he was naturally influenced by the way he had seen Napoleon winning by weight of superior numbers and then overthrown when the balance of numbers shifted to the other side. Clausewitz was a military philosopher rather than a prophet, more sensitive to the effects of the political Revolution than to those of the Industrial Revolution. His writings show little recognition of the potential influence of scientific discovery and invention upon warfare. Having reached the conclusion that ‘superiority in numbers becomes every day more decisive’, it was logical that his influence should be strongly in favour of the system best calculated to produce such quantity of man-power. The growth of the system was nourished by the evidence of the American Civil War, where both sides resorted to conscription. Then, in 1870, came the victory of the short-service troops of Prussia over the long-service troops of France, where conscription had but recently been re-

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introduced in a partial form and as a supplementary measure. That obvious contrast carried more weight into the world than all the other factors which tilted the scales against France. As a result, universal peace-time conscription was adopted by almost all countries as the basis of their military system. This ensured that wars would grow bigger in scale, longer in duration, and worse in effects. While conscription appeared democratic, it provided autocrats, hereditary or revolutionary, with more effective and comprehensive means of imposing their will, both in peace and war. Once the rule of compulsory service in arms was established for the young men of a nation, it was an obvious and easy transition to the servitude of the whole population. Totalitarian tyranny is the twin of total warfare—which might aptly be termed a reversion to tribal warfare on a larger scale.

The transition was achieved partly in the course and partly as a consequence of the next great war, that of 1914–18. Here the machinery of mobilizing the conscript masses proved a fatal factor in precipitating the war, since the dramatic calling-up of the nations' men from their civil jobs produced a state of excitement and disturbance which prejudiced the diplomatic efforts to avert a conflict. As the German Chancellor emphasized, with wider and deeper truth than he realized, 'mobilization inevitably means war'. Once war broke out, it developed the characteristics foreshadowed by the trend of ideas in the previous century, and produced a degeneration of civilized standards of behaviour that was in many ways worse than that which had marked the Revolutionary-Napoleonic wars.

A large-scale landmark in the 'Great Decline' was created fifty years before 1914—in the American Civil War. This was in many ways the prototype of modern 'total war'. The devastation of Georgia by Sherman, and of the Shenandoah Valley by Sheridan, were designed to undermine the resistance of the Confederate armies by destroying their homes, as well as their sources of supply. These 'anti-civil' operations proved more effective than Marlborough's devastation of Bavaria, for they

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were decisive in producing the collapse of the Confederacy. The end appeared to justify Sheridan's argument for the means: 'Reduction to poverty brings prayers for peace more surely and more quickly than does the destruction of human life, as the selfishness of man has demonstrated in more than one great conflict.' But the evidence tends to show that the decisive effect was mainly due, not to selfishness, but to men's instinct to protect their families—which caused the Confederate armies to melt away when the invader got in by the back-door and laid waste their homes.

Apologists for this devastation and terrorization, employed by the Northern armies to fulfil their object of preserving the Union, can argue that it was not simply a revival of a bad practice that had disappeared, but a wider application to land warfare of a method which had been impressed on American minds in the war of 1812–15. Here, the British Navy had carried out destructive raids on many places along the American coast, including Washington and Baltimore, in accordance with a plan 'to destroy and lay waste such towns and districts as might be found assailable', the object being to make the people put pressure on the Government to make peace—the same object that Sherman and Sheridan pursued on a larger scale. Such bombardment of towns was a traditional method, maintained in sea warfare when land warfare had become more humane. In the Crimean War of 1854–5, the Royal Navy repeatedly bombarded the Russian coast towns on the Baltic, the Black Sea, and the Sea of Azov, in order, as the First Lord of the Admiralty said, to 'teach them that a war with England is not to be engaged in with impunity'. The policy was strongly criticized in Parliament and in *The Times*, but the more general tendency to approve it was reflected in *Punch* and in election results. Two other famous examples were the bombardment of Canton in 1856—which produced a revulsion that momentarily unseated Palmerston's government—and the bombardment of Kagosima in 1863, which left that Japanese city 'a mass of ruins and flames'.

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The Franco-German War of 1870–1 was marked by several land bombardments of cities, not merely of the forts defending them. The generals were divided in opinion on the question of bombarding Paris, and Moltke himself was averse to it, but public clamour in Germany favoured the adoption of the more ruthless policy, as it had in England during the Crimean War. Another ominous development was seen in the drastic measures taken to suppress the guerrilla warfare to which the French resorted after the defeat of their regular armies. Even so, they appeared too mild in the eyes of General Sheridan, who had come over from America to see the campaign, and told Bismarck—‘You know how to hit an enemy as no other army does, but you have not learnt how to annihilate him. One must see more smoke of burning villages, otherwise you will not finish off the French.’ But the German leaders abstained from following this advice, and France escaped any such devastation as had been inflicted on the Confederate states.

Another bend on the downward grade was provided by the South African War. Here, the capture of the capitals of the two Boer Republics failed to bring the war to an end as expected, owing chiefly to the British demand that they must surrender their independence. Such a demand was a departure from custom in conflicts between nations of European origin, and its totality of aim might be regarded as the inauguration of ‘total warfare’. The Boers now turned to guerrilla warfare. After unsuccessfully trying for some months to deal with it on customary lines, Kitchener adopted the plan of laying waste the countryside, burning the Boers’ farms, and removing their women and children to concentration camps—where, it is estimated, some 25,000 died. This left a legacy of bitterness that subsequent generous treatment of the conquered did not fully succeed in dispelling.

The decline of civilized behaviour became steeper during the world-wide war of 1914–18. There was an appalling growth of brutality towards wounded and prisoners; inflated ‘atrocities’ stories in turn produced a tendency to give no quarter; looting

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became rampant; historic buildings and other treasures of civilization were subject to destruction on the lightest plea of military necessity; and the rules of war designed to protect the civil population were callously violated in many directions. 'Hate' propaganda multiplied all these evils. In the decade before the war, the popular press had developed an increasing tendency to feed the public appetite for sensations, and now in wartime applied this technique to the stimulation of passions. The process reached the depths of absurdity when 'patriotism' imposed a ban on the literature and music of 'enemy' countries. Nothing more clearly illustrates the degeneration of civilization than a comparison between these modern perversions and the attitude that prevailed even in the Napoleonic wars—for example, the courtesies that were exchanged between the armies; the measure of liberty and sympathy given to prisoners; and the way that art and science were regarded as 'above the battle'. At the height of that bitter struggle, British scientists were allowed to travel freely on the Continent and were hospitably received by French scientists.

The initial impetus downward in 1914-18 can be traced to the Prussian school of military thought that had been nourished by Clausewitz, and carried much further by the second and third generation of disciples. Excess of logic had led them to the dubious conclusion that ruthlessness was the best policy to hasten the end of resistance; militaristic conceptions and brutal impulses reinforced that conclusion. It was applied during the invasion of Belgium and France with a degree of severity that in many respects exceeded the practice of 1870. It appeared all the worse because it followed the shock of Germany's cynical violation of neutral territory. Thus the chances of humane restraint in the conduct of the war were prejudiced from the outset.

Further influence for ill was created by the advent of new weapons which did not fit into the old code of warfare, and thus tended to cause fresh cracks in it. At sea, the submarine proved a most valuable asset for the side that was outweighed in fleet

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strength, especially as a means of commerce destruction and counter-blockade. Its value in these respects, however, was accompanied by a vulnerability that magnified the risks to itself if it tried to fulfil the rules of International Law as to visit, search, and safeguarding the lives of a ship's crew and passengers before sinking it. Thus submarine warfare naturally developed into a savagely unlimited form of guerrilla warfare at sea when exploited by a state which put logic before wisdom. As a result, Germany eventually brought the strongest neutral nation into the scales against itself. On land, Germany introduced gas into warfare, in April 1915. Logically, it is difficult to object to the use of gas while accepting high explosives, especially as the percentage of victims who died or were permanently disabled was much smaller. But Germany's innovation outraged the general feeling of mankind, for a momentary and limited military profit. She did not even reckon with the fact that the prevailing trend of the wind in the Western theatre of war would assist her opponents' retaliatory use of gas more than it helped her own employment of it. A third new weapon was provided by the development of aircraft. With this, likewise, Germany incurred odium without deriving profit, by trying it in a primitive and haphazard way as a means of bombarding cities at long range. In sum, her too narrow outlook on the problems of war led her to indulge in manifold breaches of civilized 'manners', only one of which brought her any serious advantage, and all of which worked out to her ultimate disadvantage.

More damage to civilization and the prospects of the future was produced by the way that her opponents accepted and practised, with even less understanding, the theory of unlimited war which had led her astray. That was manifested, above all, in giving the practice of blockade an unlimited extension, and in proclaiming the utter destruction of Germany's power as their war aim.

As recently as the Hague Conference of 1907, the British delegation had proposed a universal abolition of all seizure of

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contraband, and although neither France nor Germany had been willing to go so far, the subsequent international naval conference in London had resulted in an agreed and moderate list of contraband articles. But there was much criticism of the agreement from a school of naval thought that was concerned to maintain the offensive power of blockade, and did not foresee the danger which an island state might suffer from an unlimited submarine blockade. The opposition of the House of Lords held up the ratification of the 1909 Declaration of London. As soon as the war broke out, the British Government began to disregard its limiting rules, thus giving the enemy a justification for his submarine counter-blockade, and then went on to extend its own interpretation of contraband further and further. This extension brought Britain dangerously close to war with the United States. But once the latter came into the war all limitations were overridden, with little regard for the remaining neutrals.

The unlimited 'starvation blockade' became a decisive factor in producing the collapse of Germany and Austria. But it was essentially an inhumane method of war, since it pressed hardest on non-combatants, especially the weak and the old, and worked to undermine the resistance of the opposing armies by inflicting misery on their families. In this way, it reproduced on a larger scale the methods of Sherman and Sheridan in the American Civil War and of Kitchener in the South African War. 'The means were justified by the end' in the immediate practical sense of achieving the war aim, but not in the greater sense of the peace aim. It not only impoverished, but poisoned the soil in which peace had to be replanted.

The 'starvation blockade' would not have been carried to such an extreme but for the unlimited war aim that came to be pursued by the Allies, which in turn prepared the ground for a fresh crop of war. The adoption of that extreme war aim was powerfully influenced by the Press, as well as by propaganda which used the enemy's misdeeds, and magnified them with many concoctions, to produce an artificial manure for the war

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effort. The leaders of the Allied democracies were far more subject to the surge of popular opinion than the Allied statesmen at the time of the Napoleonic war, and were thus less capable of conducting war with a view to the subsequent state of peace.

The history of ancient Greece showed that, in a democracy, emotion dominates reason to a greater extent than in any other political system, thus giving freer rein to the passions which sweep a state into war and prevent it getting out—at any point short of the exhaustion and destruction of one or other of the opposing sides. Democracy is a system which puts a brake on preparation for war, aggressive or defensive, but it is not one that conduces to the limitation of warfare or the prospects of a good peace. No political system more easily becomes out of control when passions are aroused. These defects have been multiplied in modern democracies, since their great extension of size and their vast electorate produce a much larger volume of emotional pressure.

Pressure of passion, reinforced by territorial and personal ambitions, prevented good use being made of opportunities for making peace on satisfactory terms at a time, 1917, when conditions were more favourable to the prospect of lasting peace than they were in 1919. The same pressures ensured that the peace which was made after complete victory would prove a bad peace, not only for the losers but for the victors. The British Prime Minister, Mr. Lloyd George, showed an inclination towards moderation, like Castlereagh and Wellington a century before, but was then stiffened by a 'round-robin' telegram of protest against any leniency from 370 Members of Parliament—unwitting grave-diggers for the next generation. The French Prime Minister, M. Clemenceau, lived up to his nickname of 'the Tiger', but even then was too moderate to satisfy most of his countrymen. President Wilson, though he had been a professor of history, showed no historical sense. That was the more unfortunate, since he could put the most weight in the scales.

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The very fact that the losers were made to sign the peace treaty, when utterly helpless to maintain their objections, robbed it of any moral validity. The insistence on them making a formal admission of war guilt naturally meant that any sense of guilt would be swamped by the feeling that insult had been added to injury. Greater cause for grievance was created by the obvious differences between the 'principles of settlement' defined by President Wilson, prior to Germany's capitulation, and the specific terms which were actually framed after the armistice. The forfeits of home territory imposed were not exceptionally severe, but in a long view unwise in application to a people already suffering from claustrophobia, especially when coupled with the confiscation of all its oversea colonies. Much worse, however, was the unlimited indemnity, which, in deference to President Wilson's scruples, was called 'reparation'. The French proposed a figure *one hundred and fifty times greater* than the indemnity they had been forced to pay after the 1870 war, with the idea that the impossibility of paying it would keep Germany in permanent subjection—by preventing her economic recovery, while enabling France to continue indefinitely in occupation of the Rhineland. The Americans suggested £6,000,000,000—which, though only one-fifth of the French figure, was also far beyond possibility. In the end, Germany was made to sign a blank cheque, to be filled in as the victors eventually decided. This naturally discouraged any attempt to meet her obligations, and spurred her to find a way of escape in going bankrupt, with consequent impoverishment of the more stable elements in Germany.

Another unwise condition, resulting from a compromise between the divergent Allied views, was the length of the occupation—so long, by past standards, as to ensure that resentment would become deep-rooted, while ending just as a new generation nurtured in bitterness was growing up. Thus it provided no real security. The bitterness was intensified in 1922 by France's seizure of the Ruhr as a 'productive pledge', an action which the British Government considered illegal under the treaty.

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History should have taught the statesmen that there is no practical half-way house between a peace of complete subjugation and a peace of true moderation. History also shows that the former is apt to involve the victor in endless difficulties, unless it is carried so far as to amount to extermination, which is not practicable. The latter requires a settlement so reasonable that the losers will not only accept it but see the advantages of maintaining it in their own interests.

The settlement with Germany flew in the face of all experience. No peculiar evil nature in the German people is needed to explain why the settlement did not last. Any people whose spirit was not permanently broken would have striven, first, to evade, and then, to reverse such crippling and humiliating terms. Those who imposed them showed no understanding either of history or of human nature. The silliest feature of all was that the new republican government was compelled to be the agent of their acceptance. This situation arose from President Wilson's insistence that the German people should overthrow the Kaiser as a prelude to peace; if he had possessed the common sense of a Castlereagh or a Wellington, he would have realized that such a condition was irreconcilable with severe peace terms. Almost inevitably, the result of the new regime becoming responsible for their acceptance was to discredit it from the outset, make it a scapegoat, and lead to its downfall.

The prospects were made much worse by the state of exhaustion and chaos to which Europe was reduced by the time that peace was made, and by the general degeneration of standards produced by the years of violence. The soil of Europe had been all too well fertilized to bear a crop of revolutions ripening into tyrannies. They soon sprouted, though in Germany rather later than might have been expected. There it was delayed by the revival of hope and prosperity that followed a relaxation of the reparation demands, but when this revival was quenched by the world-wide economic slump, National Socialism grew rapidly, and became dominant in 1933.

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The nature of these revolutions, as in the case of the French Revolution, was inherently prejudicial to civilized standards of behaviour, while directed to achieving a pitch of national organization in peace which ensured that any future war would become more total. The result has been seen in the more drastic, and often atrocious, treatment of conquered populations during the present war. This has reached a depth of inhumanity unplumbed since the Wars of Religion, and has been more demoralizing through its elaborate organization. Scientific ruthlessness can be more deadly to civilization than savagery. What has taken place since war broke out is, however, simply the external application of a mode of ideas and manner of behaviour that had already arisen from the internal revolution. War conditions were bound to produce that intensification of its evil characteristics which Europe has witnessed and suffered in the last few years. But it is a civil development, executed primarily by forces organized for a 'political police' role, and is to be distinguished from military developments.

On the military side, in contrast, the balance of evidence seems to show that the level of behaviour has been better in a number of respects than that of the last war, at any rate in the struggle between Germany and her Western opponents. Here, the armies have in general observed many of the rules contained in the old code of war, both as between themselves and in dealing with the civil population of areas they have overrun. Allegations of military atrocities have been much fewer than in 1914-18, and so have authenticated cases. This is a significant phenomenon, and the most hopeful one for the future that has emerged from the present war. It might be turned to good account.

Such a gain for civilization has, however, been overwhelmingly counter-balanced by the terrific growth of air warfare, and the sweeping disregard for all humane limitations on bombardment from the air. This has produced an extent of devastation, and in some parts a degradation of living conditions, that has not been approached since the end of the Thirty Years War.

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History has repeated itself in the fact that, as in that case, Germany has been the chief sufferer, though not an innocent one. The main difference this time is that the cities have suffered much more than the countryside. Indeed, in the destruction of cities the record of the last four years exceeds that of any period in history. Although the cities can be rebuilt, the architectural treasures of civilization they contained can never be replaced. At the same time, these operations have produced such a wholesale massacring of civilians as to recall the practice of barbaric times, except for the difference of technique and the more cold-blooded style of the operation. If civilization recovers sufficiently after the war for us to recover a civilized sense, it is likely that we shall be horrified at what we have been led to do. To later civilized ages, it may become a by-word superseding that of 'Vandals and Goths', or be charitably regarded as a case of 'mass homicide and suicide while temporarily insane'. Yet it has a simpler explanation. For it developed from the recklessly logical pursuit on a new plane of a theory of unlimited war that had only been thought out to a limited extent.

The original theory arose, as we have seen, from a Prussian military philosopher's formulation of French Revolutionary practice. But it was essentially a *military* theory, and, being conceived in terms of land warfare, was concentrated on the idea of battle. The unlimited aim of complete victory was to be achieved by the decisive overthrow of the opposing army on the battlefield. That concentration on the normal *military* method tended to preserve a humane limitation in warfare. The one striking exception prior to the present war was the new turn given to strategy in the later stages of the American Civil War, when the Union armies sought to attain their object by devastation rather than by battle. But the invention of the aeroplane produced an enlargement of the military picture, by offering new scope for striking at the will of the opposing people without having to overthrow the opposing army. This invention provided a new extension to the traditional naval

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strategy which Britain had followed in her wars—of countering her enemies' natural superiority of land force by cutting off their oversea supplies, and striking at their economic system. Because of her island situation and limited resources Britain never had the power to achieve outright victory over a great Continental state. Her real power lay in her capacity, through command of the sea, to make any Continental opponent sick of the war and anxious to make peace on terms satisfactory to her. In view of the tendencies developed by that tradition of strategy, it was natural that the British method of using air power should become a continuation of it.

That trend became pronounced when, in 1918, the British took the lead in creating an Air Force separate from the other fighting services. The directing minds of the new service were eager to develop a field of action wider than that to which they had hitherto been confined, as a mere supporting arm. They wanted to stretch their wings beyond the battlefield. Looking for a suitable theory on which to base air operations, they found it in a logical adaptation of the 'economic' aim of Britain's characteristic way of warfare. Instead of being limited to narrowly military objectives, the new-born air force should be used to strike at the sources of the enemy's war effort. In the peace-time theory of the Air Staff, as it was evolved, this aim was to be achieved by precision-bombing, and it was argued that this would minimize the danger to the civil population other than the workers engaged in actual war production. But it was easy to see that an attempt at humane limitation on these lines would be subject to a wide margin of error, thus provoking reprisals, and that even the attempt was likely to be abandoned as the war mood became more bitter.

German air theory took a different course. That was not due to humanitarianism—a conception which military minds in all countries concurred in deriding—but to a different line of military reasoning. Although some of the *Luftwaffe* chiefs favoured the British air theory, the General Staff was predominant, and their view prevailed. Hence, in the German

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theory, the bombing force was to be used primarily to aid the operations of the army, rather than independently against the interior and industry of the opposing country. That decision would seem, also, to have been influenced by the fact that the Germans, having studied war more closely than most people, had come to see the ultimate drawbacks of destroying cities and industry, and the way that this damages the post-war situation—especially where there is any risk of it leading to a process of mutual devastation.

Continental countries, with land frontiers susceptible to invasion, naturally tend to be more conscious of the drawbacks of a 'devastating' mode of warfare than sea-girt countries which have had relatively little experience of its effects. That is why codes of warfare, aiming at mutual limitation, have always tended to grow up on the Continent, whereas history brings out the fact that our own practice of warfare through the centuries, fostered by our relative immunity, has been more than ordinarily ruthless, or reckless, regarding the infliction of economic damage. Military men bred in the Continental tradition tend to have a legalistic attitude towards the methods of war, which to some extent mitigates the ruthlessness of their military logic. Moderation in our practice of war has been more apt to come from the humane feeling of individuals, or the gentleman's code, rather than from regard for the rules of war that developed on the Continent—rules which naturally fitted overland warfare rather than oversea warfare.

The trend of German ideas was seen in Hitler's proposal of 1935, repeated in 1936, for a universal agreement that bombing should be confined to the zone of military operations in the narrower sense, i.e. the fighting zone. The probability that this proposal was genuinely intended is recognized by such an authority as J. M. Spaight, a former Principal Assistant Secretary of the Air Ministry, in his 1944 book, *Bombing Vindicated*. The proposal did not meet with much response in England. On the one hand, it conflicted with the British theory of air warfare, and appeared better suited to Continental powers that had

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strong armies. On the other hand, it ran counter to the instinctive assumption that all rules were impracticable, a narrowly practical view which was mated with the extremely optimistic belief that any return of war could be prevented. That idea was epitomized by Lord Thomson, Air Minister in both the Labour Governments between the wars, when he expressed the view that efforts to formulate rules for war, 'to limit its scope, to prevent its worst atrocities, in short, to civilize it and bring it up to date', merely 'helped to perpetuate an international crime'.

Such an attitude, which was very common, hindered the possibility of regulating the future use of air power, and it was reinforced by the pressure of those who, in their specialist enthusiasm, desire to see it exploited to the full. As Spaight remarks:

'There were rules, internationally agreed, for war on land and sea. There were none for air warfare. An attempt was made, indeed, and rules were drafted by a Commission of jurists at the Hague in 1922-3, but they were never embodied in a convention. When the war began in 1939, the air arm, alone among the arms of war, went into war without a stitch of regulations to its back . . . the omission was, in part at least, the result of a determination that nothing should be done.'

Even in respect of the rules of bombardment, evolved for land and sea warfare, there was an important difference of view. Spaight himself pointed out in his 1930 treatise *Air Power and the Cities* that, while the jurists of most countries considered that there should be some limitation on wholesale bombardment, the official manuals of two countries adopted the principle that 'an attacking force is under no legal duty to limit the bombardment'. Those two were the British Manual and the American Manual on the rules of warfare. The British Manual, denying this obligation, said 'On the contrary—destruction of private and public buildings by bombardment has always been, and still is, considered lawful, as it is one of the means to impress upon the local authorities the advisability of surrender'. That view can be traced to the Navy's longstanding practice of coast

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raids, and the way that the Admiralty had maintained its claim for licence to bombard towns, within range of ships' guns, as a means of putting pressure on the enemy's people. The continuance of that claim allowed far more scope to the Air Force, which could carry its operations beyond the coast, into the interior. As for the similar licence claimed by the American code, this can be traced to the unlimited practice of the American Civil War. When the American air force reinforced the British, it was thus the more certain that bombing would be carried to the utmost pitch of devastation.

Turning to the German air operations during the earlier stages of the war, when the Germans had a great superiority of bombing force, it has to be recognized that their practice kept close to the conditions of their theory and of their pre-war proposal. The bombing of Warsaw and Rotterdam horrified the world, coming before it had become acclimatized to such air massacres, but that action did not take place until the German troops were fighting their way into these cities, and thus conformed to the old rules of siege bombardment, as well as to the 1935-6 definition.

The Germans' departure from this code can hardly be dated before September 1940, when the night bombing of London was launched, following upon six successive attacks on Berlin during the previous fortnight. The Germans were thus strictly justified in describing this as a reprisal, especially as they had, prior to our sixth attack on Berlin, announced that they would take such action if we did not stop our night bombing of Berlin. Moreover, it has also to be admitted that, notwithstanding their overwhelming bombing superiority, they took the initiative a few weeks later in proposing a mutual agreement that would put a limitation on such city bombing. Moreover, several times they discontinued their attacks when there was a pause in the much lighter British raids, thereby showing their desire for a truce to the inter-city bombing competition. The significance of these tendencies lies in their evidence, not as to the Germans' 'humanism', but as to their long-term realism.

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This accords with other evidence from history that a calculatingly aggressive power is often more apt to measure the consequences of disregarding limitations than are the nations which have to meet aggression. That calculating tendency accords with the proverb that 'a burglar doesn't commit murder, unless cornered'. It might be turned to good account by cool-headed opponents of aggression.

In this war, by contrast, great pressure of authoritative and public opinion developed in Britain towards breaking away from the tacit limitation on bombing which was observed on both sides during the opening months. There was an eager desire to find an excuse, or even provoke an occasion, for trying out the British air theory of destroying the enemy's sources of war production. The effort was initiated almost immediately after the German Army's offensive in the West opened in May 1940. It was continued and extended after the collapse of France. The way it was described as the 'master plan' expressed the absurdly optimistic estimate of those who conceived it, but in view of the slender scale of the British bombing force it was more truly like throwing pebbles to provoke the enemy into throwing boulders in return. Its main result was to precipitate the 'blitz' on Britain's own cities, with proportionately greater damage to her own war production. In the circumstances of the time, it could amount to nothing better than a form of slow suicide—from which she was lucky enough to be saved by Hitler's decision to invade Russia, instead of concentrating Germany's resources on building up a bombing force sufficient to finish off Britain. That change of direction provided Britain with the respite she needed to expand her own bombing force to superior dimensions. Even so, successive anticipations of its decisive effect in crippling Germany's war production were, as repeatedly, disproved by events—although the tonnage of bombs was multiplied year after year, and precision bombing abandoned in favour of the wholesale plastering of cities with high explosives and incendiaries.

While this strategy of devastation from the air was in the

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natural line of descent from Britain's traditional strategy, it brought a much greater danger to the civilization she was fighting to preserve. The naval-type strategy which she had pursued during the wars of the sixteenth, seventeenth and eighteenth centuries was inherently more 'barbarous' than the military-type strategy of Clausewitzian and Continental practice—because it sought to subdue the will of the opposing nation by inflicting damage upon its means of life, rather than by overthrowing its army. It was thus in a sense aimed more directly at the civil community. At the same time, its effect was modified in two important ways. The first was the natural limitations of naval pressure, compared with the all-embracing reach of an air force's destructive power. The second was the reasonableness of Britain's war aims. She was usually willing to accept a negotiated basis of peace when the enemy had become sick of the war, and was prepared to climb down—to abandon his opposing aims. Except in the war against Napoleon, Britain did not pursue the fight to a finish—which is apt to entail not merely the exhaustion of the opposing forces, but mutual exhaustion of the capacity to rebuild peace. Even in the war against Napoleon, her statesmen took care to ensure that the terms of peace for the French people were sufficiently moderate as to promise a lasting peace.

It is the combination of an *unlimited aim* with an *unlimited method*—the adoption of a demand for unconditional surrender together with a strategy of total blockade and bombing devastation—which, in this war, has inevitably produced a deepening danger to the relatively shallow foundations of civilized life. The bitter fruits are already being reaped in the countries which have undergone this process of liberation by devastation. The results, for Europe, of reducing Germany to a worse state, comparable even to that produced by the Thirty Years War, have yet to be seen.

In the circumstances of this war, it was difficult for us to avoid carrying these means to an extreme *if* we took as our end the unconditional surrender of the opposing powers. But that

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reflection on the practical compulsion does not alter the fact that this policy involved the paradoxical course of seeking to preserve European civilization through practising the most uncivilizing means of warfare that the world has known since the Mongol devastations.

III

CONCLUSIONS

The future is moulded by the past. The best promise for the future lies in understanding, and applying, the lessons of the past. For that reason, in discussing the problems created by the current war, more light may come from tracing the whole course of the revolution in warfare than by dealing merely with the appearances of the moment. If we realize how the conditions of this war have come about, there may be some prospect of averting a more deadly recurrence.

The problem, like a coin, has two sides—the ‘head’ is the prevention of war, but the ‘tail’ is the limitation of war. If experience has taught us anything, we should now be capable of realizing the danger of concentrating exclusively on the perfectionist policy of preventing war, while neglecting the practical necessity, if that policy fails, of limiting war—so that it does not destroy the prospects of subsequent peace. For no nation engages in war, offensive or defensive, without the idea that it will end in a better state of peace. That such hopes are rarely fulfilled is due to ignorance and uncontrolled passion, and these fatal conditions are apt to be more marked on the side that is forced into war in self-defence. It is the peaceful nations, above all, who need to learn that moderation in war is the best guarantee of subsequent peace.

For the prevention of war, the obvious solution is a World Federation, to which all the nations would agree to surrender their absolute sovereignty—their present claim to be final judge of their own policy in all respects, and in any disagreement which affects their interests. Federation has proved effective in preserving peace among different nationalities in successively large groupings. Where it has been adopted it has stood the test of crises. Although the United States of America is the most

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commonly quoted evidence of its success, the Swiss Confederation is in some ways a more remarkable case, while we are too apt to forget the two outstanding demonstrations provided in this island—first, the union of the Saxon kingdoms to meet the Danish threat, a thousand years ago ; second, the union of England and Scotland in 1707, which the threat of Louis XIV's bid for French domination of Europe helped to produce.

Federation would imply a super-national organ of government, and a supreme court of justice ; it would need to be supported by an international force. Its advantages are manifest, though we should be wise to reckon with the danger that it could lend itself to a military *coup d'état*, and the establishment of a world dictatorship. A more insidious danger is the possibility of it promoting a sterilizing uniformity. Even so, for the prospect of peace, its probable advantages outweigh the possible disadvantages.

It is painfully clear, however, that the idea of world federation has no practical chance of acceptance in the near future. It was emphatically turned down by the allied conference on post-war security held at Dumbarton Oaks. The alternative scheme that has emerged is a mixture between the League of Nations that was conceived after the last Great War, and the Concert of Europe that was conceived after the previous Great War, against Napoleon's bid for world domination. It combines an improved form of some of the more practical parts of the League organization with the realistic, rather than idealistic, spirit of the Concert of Europe. Viewed as the offspring of the mating of two failures, it does not inspire confidence. Viewed as a practical attempt to apply the lesson of those two failures, it carries more hope.

The obvious snag lies in the right of any Great Power to veto decisions unfavourable to itself. But it may reasonably be argued that this makes no practical difference in any scheme that stops short of federation, and that the new international organization would break up anyhow if one of its main supporters chooses to break away. A cynic might say that the scheme

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makes war unsafe for small powers to embark on, but saves it for Great Powers.

At present, the dangers are obscured by the way that attention is concentrated on the question of how to prevent a recurrence of danger from Germany. Her aggressive power faded in 1942, and her defensive power has since been worn down. Even if two ruinous wars in successive generations do not exhaust the Germans' will to war, experience shows that a nation so badly crippled is unlikely to recover its military strength, and become a renewed menace, except through the conquerors falling out among themselves. But history also reminds us that rivalry between victorious allies is apt to develop when the counterpoise is removed.

Is there any way of diminishing the dangers of fresh rivalry in a League that falls short of becoming a Federation? At the Disarmament Conference of 1932 the nations accepted the principle of qualitative disarmament—i.e. the universal abolition of the types of weapon that attack required to overcome defence. The translation of the principle into practice was delayed by vested interests and political issues; before these were settled the Nazi regime gained power in Germany, the Conference broke down, and the Germans were allowed to re-equip themselves with weapons such as the other Powers retained. They took greater advantage of the opportunity.

Looking back, we can see that all the initial successes which aggression subsequently achieved were due to the use of the particular weapons that would have been abolished under the scheme framed in 1933.¹ The Germans themselves have proved

¹ A significant reinforcement of this argument is contained in *The Principles of Power*, by Ferrero, the great Italian historian. After showing that 'civilization' is to be defined, fundamentally, as freedom from fear, he remarks: 'The sages who, at Geneva in 1932, sought the definition of a purely defensive weapon probably did not suspect that, if they had found it, the discovery would have completely changed the destiny of man by bringing to the world an age in which he would have lived without fear.'

The surmise about the 1932 conception is not quite correct. When

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to us how great is the capacity of modern defence to resist attack by immensely superior forces, even when the attacker has an abundance of such weapons—tanks, artillery, and bombers. Without these ‘tin-openers’, it is clear that the attack would have no chance at all. In the light of this experience, coupled with a scientific forecast of new trends, it should be possible to devise a new and comprehensive plan of qualitative disarmament that would deprive armed aggression of any prospect of success—while nations would keep the security conferred by the truly defensive kinds of armament. Such a plan would be a working substitute, at this stage, for political federation as an antidote to war. The real question is whether the present ‘United Nations’ would agree to accept it, together with the necessary system of technical supervision.

Failing that, the best chance may lie in trying to revive a code of limiting rules for warfare—based on a realistic view that wars are likely to occur again, and that the limitation of their destructiveness is to everybody’s interest. While recent experience has shown the insecurity of international plans for the prevention of war, earlier experience shows that it is possible to develop an international habit of observing limitations, from a shrewd realization that mutual restraint is beneficial to self-

the definition of offensive weapons was devised, the far-reaching effects of their abolition were perceived—though it was difficult to get them fully appreciated even by those who espoused the plan, while those who opposed it took little trouble to consider its wider implications. Their interest was to find objections. The idea of eliminating weapons that favoured the offensive was naturally objectionable to most military minds. Mr. Winston Churchill, in the House of Commons, attacked the Government for sponsoring the plan and dismissed it as ‘a silly expedient’. Instead he advocated that the Disarmament Conference should draw up new rules of war designed to protect non-combatants, and, in particular, to restrict bombing to the ‘fighting area’. This was similar to the scheme which Hitler proposed later. But when Mr. Churchill came into power in 1940 one of the first decisions of his Government was to extend bombing to the non-combatant area. And from that time onward all proposals for a limitation were rejected.

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interest in the long run. The more that warfare is 'formalized' the less damaging it proves. Past efforts in this direction have had more success than is commonly appreciated. Even in the bitter struggle which has engulfed the world in the present decade, the battling armies have instinctively observed rules which developed in the period of limitation, rules which would have seemed incredible to the men who fought in earlier 'total wars'—for example, the rule of taking prisoners, instead of massacring all the defeated army.

War between independent states which acknowledge no superior sovereignty has a basic likeness to a fight between individual men. In the process of restricting such murderous fights, the judicial combat of the early Middle Ages served a useful purpose until such time as the authority of the state was wide enough and strong enough to enforce a judgment by law. The formal rules of judicial combat came to be respected long before 'individual warfare' was effectively abolished in favour of a judicial decision by legal process. The value of such rules was aptly summed up in Montesquieu's *Esprit des Lois*, where he remarks that, just as many wise things are conducted in a very foolish manner, so some foolish things have been conducted in a very wise manner. The point of his remark can be all the better appreciated by comparing eighteenth-century war with twentieth-century war.

When the authority of Church and State was shaken by the disruptive conflicts of the later Middle Ages, individual warfare was revived in the guise of duelling. In sixteenth-century Italy, its dangers were curbed by such a multiplication of rules that it faded out—formality gradually producing nullity. Elsewhere, especially in France, the duel had a longer run, but it can be seen that its increasing formalization was an important factor in assisting the efforts of law, reason, and humane feeling to suppress the practice. Even at the worst, the custom of the duel provided a regulated outlet for violent feelings which checked a more rampant revival of individual killing.

In a similar way, the wars between the Italian city-states of

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the Renaissance period, and the greater ones between the European nation-states of the eighteenth century, not only bore witness to human pugnacity but provided evidence of the possibility of regulating it. They were an outlet for the aggressive instincts, and for the types of men who are naturally combative, while keeping their violence within bounds—to the benefit of civilization. Such warfare may have been more of a necessity than idealists would care to recognize, but in limiting the evil they served a better purpose than is generally realized.

When we survey the present state of the world, it is difficult to see any check upon the destructiveness of warfare—if war breaks out between nations that have different systems of government, different ideologies, and are able to convert all the resources of science into instruments of destruction. Looking at the situation through present-day eyes, it seems vainly optimistic to hope that any civilized limitations can be revived.

Yet an historical sense provides a foundation for hope. Since sanity could be recovered, and common sense reassert itself, after such a prolonged orgy of violence as the Thirty Years War of the seventeenth century, it is not impossible that a reaction from the disorders of the last thirty years might see a twentieth-century revival of reason sufficient to produce self-control in war, if not the abolition of war.

While violence breeds violence, it can also act as a vaccine. This dual truth of experience has often been proved. To-day, the very fact that the world has suffered so badly from the plague of war twice within a generation may increase the counter-active effects. Besides war-weariness, there are other important psychological factors that may help to create conditions favourable to a renewed period of limitation. The multiplication of machinery has sterilized the romance of war, by diminishing the value of human qualities. Courage and skill are of little avail against a superiority of machinery. The bomber has extended the de-humanizing effect of artillery; the flying bomb and the rocket bomb carry it a stage further. These automatic weapons make nonsense of the soldierly idea that success

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in war is a proof of a people's virility and virtue. They have reduced men to the status of rabbits in a laboratory experiment. That unromantic truth may have a better chance of being generally recognized after this war.

Another factor may be a keener sense of the dangers of nationalism. In the peace settlement after the last war, nationalism was exalted in the principle of self-determination—which offset the value of the League Covenant by fostering forces too powerful for it to contain and restrain. President Wilson's twin articles of faith were mutually antagonistic. This war has brought a growing realization that nationalism is a perilous passion, which easily develops into the equivalent of a death urge. It is also very infectious. The best vaccine would be a popular revulsion against the claims of the national-state to compel the service of individuals, as distinct from the regulation of individual activities that conflict with others' freedom. The principle of compulsory service, embodied in the system of conscription, has been the means by which modern dictators and military gangs have shackled their people after a *coup d'état*, and bound them to their own aggressive purposes. In view of the great service that conscription has rendered to tyranny and war, it is fundamentally shortsighted for any liberty-loving and peace-desiring peoples to maintain it as an imagined safeguard, lest they become the victims of the monster they have helped to preserve—as has happened before.

The development of flying bombs and rocket bombs may have more effect in this respect than any arguments for freedom. For automatic weapons foreshadow the obsolescence of armies as well as of air forces. In the future, the quality of a handful of scientists may weigh more heavily than any conscript mass of infantry, reducing to absurdity the quantitative value of human numbers, while nullifying both the appeal and the power of 'militarism'. Such a revolution in warfare makes its limitation more urgent, but also more practicable.

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THE ATOMIC BOMB

Nothing could have been more effectively designed to reinforce the argument in the preceding pages, which were written beforehand, than the advent in warfare of the atomic bomb in August 1945. This represents merely a further stage in the evolution of 'automatic warfare'. But the atomic bomb arrived so quickly on the heels of the flying bomb and the rocket bomb that it should drive home the conclusions set forth earlier. The German-produced V 1 and V 2 did not perhaps go far enough in their *actual* effect to convince the world that the problem of security has undergone a fundamental change. V 1 and V 2 did not succeed in their strategic aim. Public opinion does not probe into the underlying causes of failure, but tends to be swayed by the outcome. Traditional military minds could thus find ground for disputing the *potential* effect of these new weapons.

The use of the atomic bomb was followed by such a dramatically quick collapse of Japan's resistance that its decisive effect can hardly be disputed. Those who are by profession concerned with war, and who have a normal disinclination to see their profession disappear, have been driven back on a second line of resistance—the argument that every new weapon has its antidote. They have been prompt to develop a controversial counter-move from this line. Such arguments reinforce the more general tendency of static minds to assume that everything will go on as before—including the forces and their functions.

Past experience has shown that no development is ever quite so overwhelmingly potent as it appears in anticipation, or even on the promise of its first performance. But atomic energy is such an incalculable force that it is doubtful whether we are justified in reckoning on this bearing from past experience. On the other hand, history shows that professional 'vested interests'

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always underrate the effect of any new development upon their own practices—and there are already signs of this tendency re-asserting itself. It could be very prejudicial to the future.

While an antidote has been found for every new offensive development hitherto, there has always been a time-lag between such a development and the production of the antidote. The time-lag inevitably favours aggression, and aggressors commonly count upon it—since they are naturally optimistic, and inclined to take short views. As offensive developments become more powerful even a short time-lag becomes more dangerous.

It is conceivable that an antidote may be found to the atomic bomb, through some new defensive development of Radar, but it is hard to see how such an antidote could be brought into operation until after hostilities actually began. The initial attack by atomic bombs might be made by civil aircraft, or more likely by rockets, prior to any declaration of war. It is well to remember that 'Port Arthur' in 1904 was followed by 'Pearl Harbour' in 1941, and we should not overlook the possibilities of a third trick in the series.

Taking account of these possibilities it would seem that the rest of the lives of all peoples now living will be spent under the chilly shadow of 'atomization' without warning.

A lessening of that shadow might be secured by international agreement to apply the principle of qualitative disarmament to this new development, *and* to organize the necessary system of supervision for its world-wide control. That could be a considerable insurance for humanity. Even so, we have still to reckon with the prospect that the release of atomic energy can, with improved methods, be attained without the use of large-scale plants that are susceptible to control. We are thus brought back to the conclusion that the ultimate safeguard lies in the revival of a habit of mutual restraint—in other words, a renewed growth of civilized manners in the society of nations.

Warfare as we have known it in the last thirty years is not compatible with the atomic age. That message should be clear,

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though it has a two-sided bearing as well as a doubled-edged meaning.

If one side possesses atomic power and the other does not, embattled resistance makes nonsense. That spells the disappearance of warfare in such cases. Resistance must be transferred into subtler channels, of non-violent or guerrilla type. Even in the era of mechanized warfare, embattled resistance had become no more than a heroic gesture for small countries that did not possess mechanized power. All the sacrifice of time and money their people had made for the maintenance of their armed forces, and in conscript service, was sheer waste of effort, unless they could be effectively embraced in the defence scheme of a greater Power. Their own effective kind of resistance only began after their armies had been overthrown. The gesture of keeping forces to offer battle was a superfluous extravagance.

Where both sides possess atomic power, '*total warfare*' makes nonsense. Total warfare implies that the aim, the effort, and the degree of violence are unlimited. Victory is pursued without regard to the consequences. In the chaotic aftermath of the Second World War, we are beginning to realize what the lack of any prudent limitations has meant in the way of stultifying our objects. That recklessness has left us not only impoverished, but faced with harder problems than before. An unlimited war waged with atomic power would make worse than nonsense; it would be mutually suicidal.

That conclusion does not necessarily mean that warfare will completely disappear. But, unless the belligerent leaders are crazy, it is likely that any future warfare will be less unrestrained and more subject to mutually agreed rules. Within such limits it may develop new forms.

An important lesson from the experience of warfare is that aggressors—unless they are merely barbaric hordes—tend to rely on improved use of conventional weapons, and to avoid widespread destruction, whereas the incensed victims of aggression tend to be far more reckless. That is a natural tendency—because aggressors are calculating. They plan to achieve their

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gains with the least possible damage, both to themselves and to their acquisitions, whereas the victims of aggression are driven by an uncontrollable impulse to hit back regardless of the consequences.

That tendency has been demonstrated afresh in the war just ended. Hitler, during the time when he had immensely superior bombing power, was remarkably reluctant to unleash it fully against his opponents' cities, and repeatedly sought to secure a truce in city-bombing during the peak-days of his power. Neither we nor the Americans, when they came into the war, were restrained by any such calculating considerations about the ultimate effects of unlimited devastation. We were dominated by the impulse to destroy Nazism whatever else was destroyed in the process.

Reflection on these innate tendencies suggests that any future aggressor who is aiming at profitable expansion, and not driven by the instinct of pure revengefulness, may hesitate to employ atomic bombing—unless it becomes much more controllable and its effects can be more surely localized. Even though he possesses a superiority in such means, he may be led to hold it in reserve, except in so far as he can induce his opponents to bow to his demands by the mere threat of using it. For he will have to reckon with the likelihood that they, or their supporting powers, will have no hesitation in retaliating with atomic force if he once unleashes it. Hence an aggressive-minded power in future must be able to rely on achieving a very quick paralysis of the resistance—quicker than ever before. That consideration would seem to rule out the idea of any return to the use of armed masses, inevitably slow-moving. If warfare should recur, under the suspended shadow of the atomic bomb, it seems likely to see a further expansion and acceleration of the modern tendency towards reliance on highly specialized and mobile forces.

Aggression is also likely to pursue an improved technique, designed to exploit weaknesses in the opposition while abstaining from such a direct menace, on an obviously vital issue, as to precipitate an all-out struggle. The lines of such a technique

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were indicated in the strategy of indirect approach that the Japanese at first pursued in China and the Nazis in Europe, but it could be further developed. It would seek to gain its ends as far as possible by 'camouflaged war', carried out by power-policy manoeuvres in the diplomatic field, and then if necessary go on to strategic operations against subsidiary states or outlying colonies.

'Infiltration' would be the basic method, extended much further than it has yet been, and employed in subtler ways. The deeper and more widespread the infiltration, the more it would tend to check the employment of atomic bombing in retort. The difficulty would be increased in the case of an infiltration which took civil forms rather than open military action. The aggressor could increase his prospects of immunity if he could devise ways of luring his prospective opponents into giving 'hostages' of some kind, or of intertwining his bases with theirs so that the entanglement became a check on their power of retaliation.

Beyond these possibilities, account has to be taken of the check inherent in the nature of the atomic weapon itself, where it is not a one-sided possession. A competition in atomic devastation would be so obviously suicidal for all parties that even nations which suffer aggression may be reluctant to unloose this catastrophic means of turning the tide. Such hesitation, while highly reasonable, would naturally favour the chances of aggressive infiltration progressing too far to resist.

The military policy of a peacefully minded nation, aiming at preservation but not at expansion, should therefore concentrate on the most suitable defensive means to check any aggression which proceeds on such calculations. That implies a planned re-orientation of forces and resources in a more specialized way—redesigning the whole organization to fulfil the fundamental purpose under the new conditions. The forces needed are such as possess the highest possible degree of *defensive* power. Offensive power, except in so far as it contributes to defensive power, is apt to subtract from defensive strength.

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That subtraction might have been avoided in the recent past, with better results on balance. It becomes a superfluity in the atomic age.

In default of a world-control of atomic power, any nation will be helpless unless it develops the means of incorporating this in its armoury—as a *potential* check on its own victimization. But the weapon could hardly be brought into *actual* use without the suicidal risks that would be courted by a competitive discharge of atomic power. Hence the innately defensive nations, whose policy is bound to be fundamentally conservative, cannot rely as in the past on a counter-offensive to restore their situation in the event of suffering aggression. They must in future seek to prevent an aggressor attaining any serious initial success, and that aim can only be attained by a fuller and more specific development of *defence*.

In meeting the dangers of the atomic age the primary arm will be the 'Corps of Scientists'. Just as armed masses became subsidiary to technicians in the era of mechanized warfare, so this military *élite* will in turn become subsidiary to the body of civilian scientists engaged on defence problems. But to meet the danger of aggression where atomic power is held in leash—in what one may term 'sub-atomic warfare'—forces are likely to remain essential. They will need, however, to be different in composition to the forces with which we are familiar, and the respective importance of the three Services will be changed. An army is the only kind of force that can deal with aggressive infiltration. But to do so effectively it would have to be different from the old pattern.

Conscription—that much favoured panacea for national security—will not meet the problem. In a war where atomic bombing was unleashed, a large conscript army would merely represent a large amount of wasted effort. In the case where atomic bombing was held in suspense, a conscript army that only became available after mobilization would hardly be effective to check the kind of camouflaged penetration or surprise invasion that aggressors may still attempt. Moreover, it would be

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superfluous for the defence of an island power that has itself no land frontiers susceptible to such a move. At home such a power will need scientific defences against atomic bombing, but its military defence problem will lie overseas, wherever it has a vital interest in the integrity of other land frontiers which affect its own strategic security. It can only meet that 'immediate defence' problem with professional troops permanently embodied, and raised by voluntary enlistment as in the past.

Mobility must be the keynote of the future army. It is essential for the Army's fire-extinguishing role in local outbreaks as well as for countering any new overland *blitzkrieg*. That implies not only an increased proportion of armoured divisions, but the replacement of ordinary infantry divisions by airborne divisions. These have more tactical mobility, and much more strategic mobility. Their mobile switching value as an Imperial strategic reserve could be increased by organizing a series of regional supply depots, from which they could draw their heavier equipment on arrival in any particular region. Ordinary infantry will only be useful as the static garrisons of bases on the oversea lines of communication, and such bases may have a diminished value in the coming era—besides being more vulnerable.

Mobility of supply is no less important than mobility of troop movement. Even in the war just ended, the road-bound state of the Army's transport was often a more serious brake than the enemy's opposition. Since fixed communication centres and routes may be more easily 'jammed' in the future, especially by rocket-projectiles, all transport vehicles should be of a kind capable of cross-country movement, and amphibious also if possible. Beyond this, airborne supply should be developed to the maximum extent, and will become more practicable with the naturally reduced scale of peacetime forces. Before long, rocket-borne supply may become an effective, and simpler, substitute for the use of transport aircraft.

Before the war, the Regular Army which Britain maintained fell dangerously short of the minimum strength required to meet its defensive responsibilities. She was amazingly fortunate

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in not losing her Middle East position in 1940 as quickly as she lost her Far East position in 1941. The 'peacetime' scale would have to be increased beyond that of 1919-39 if she is to enjoy any real degree of security, under present conditions. A similar reflection applies to the scale of the United States Army.

While circumstances make a great enlargement of the Regular Army impossible—and of dubious value even if it were possible—the value of a moderate increase could be multiplied by improved organization and mobility. The *effective* strength of the operational army could also be increased by transferring part of the British forces in India to stations in the Middle East and the Far East. Under modern conditions the real defence of India lies along the outlying strategic approaches to the Indian Ocean, and it should not be difficult to convince India's statesmen that they stand to gain by such a greater-depth defence, and by contributing their share of the cost. As for internal security, the forty-two scattered and relatively static battalions which were stationed in India before the war could be replaced with advantage by a much smaller number of airborne units, easily switchable to any scene of trouble.

At the same time the *actual* strength of the Army might be increased without increasing the defence budget as a whole, through the possible savings on the other Services that are now indicated by the changed conditions of warfare. The biggest part of the air budget has been due to the maintenance of a heavy-bomber force. This becomes a superfluity in the rocket and atomic age. The Air Force we need is one composed mainly of fighters for defence in general, and of fighter-bombers for co-operation with the Army. Eventually, both these needs may be superseded by rocket development. The biggest item in the naval budget has been due, directly or indirectly, to the maintenance of battleships. The diminished role of these monsters had become apparent long before the advent of the atomic bomb. Our own building programme was suspended during the war, in the light of experience as well as of America's pre-dominance, and the extinction of the other battle-fleets that we

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feared removes any serious reason for reviving the dubious programme. Thus we should be able to maintain our necessary strength in lighter craft, on a scale more adequate than pre-war, with some measure of saving on over-all naval costs.

The problem of security is conditioned by the inherent limits of a nation's resources, as well as by its relationship to other powers. The most common cause of disaster is the tendency to treat the problem in compartments. The attempt to be strong everywhere is apt to result in a state of not being strong enough anywhere. The best corrective is to plan defence as a whole, with due regard both to natural limits and changing conditions. True economy of force can achieve a much sounder insurance policy, through integrated planning inspired by foresight.

Our planning machinery has been much improved in co-ordination. Its weakness still lies in a too routine approach to the problem, on conventional lines. Planning depends on research. Under the pressure of war, much greater use has been made of scientists than ever before, and scientific research has also been initiated. But the adequate application of the data requires a mind that is both scientific and military, while for 'thinking ahead' imagination is also needed—to complete the trinity of planning qualities.

Military education hitherto has not been designed to teach a scientific approach to problems, but rather to develop executive skill and foster the spirit of loyalty. That system has made much progress in the production of commanders and of staff officers. But to tackle the defence problems of the future the greatest of our needs is to produce 'military scientists' for the higher planning.

While it is important to think out the ways and means of improving defence under the new conditions that have arisen, it is even more important to realize that any such improvement can only be a partial insurance. As in the past, but more than ever now, sectional enthusiasms can be as dangerously blinding as vested interests. For fuller insurance, the problem must be

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seen as a whole and treated as a whole. Moreover, that requires a view not only of the different parts of the problem, but of the successive levels of the problem.

A fervent faith in one particular means may be justified by its actual value in relation to other means, yet err by obscuring the higher value of its disappearance as a contribution to the end. To give an example, those British soldiers who after the last war argued that the tank was the prime factor have been proved right by the experience of the next war—and especially those who visualized it as prime in a combination rather than as an absolute sovereign. At the same time they should also have been able to see that a peace-desiring country had more to gain on balance by a general abolition of tanks. For any frustration of offensive potentialities favours the defence, which in turn promotes the prospects of peace.

Truth is a spiral staircase. What looks true on one level may not be true on the next higher level. A complete vision must extend vertically as well as horizontally—not only seeing the parts in relation to each other, but embracing the different planes.

Ascending the spiral, it can be seen that individual security increases with the growth of society, that local security increases when linked to a wider organization, that national security increases when nationalism decreases, and would become much greater if each nation's claim to sovereignty were merged in a super-national body. Every step that science achieves in reducing space and time emphasizes the necessity of political integration and a common morality. The advent of the atomic era makes that development more vitally urgent. A movement of the spirit as well as of the mind is needed to attain it.

A realism that fails to see the necessity of a world order is more unrealistic than any idealism. Yet a sense of realities imposes caution in anticipating its fulfilment—though not in attempting it. In advance of world federation, agreement to apply a world-wide system of qualitative disarmament could diminish the danger. In advance of this, the re-establishment of

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a code of conduct might, at the least, help to improve the inadequate insurance that nations can derive from pure reliance on their own armed strength. The chances would be increased if the renewal of such a code between nations was supported by a similar revival of good manners within nations. Nazism was a domestic upheaval before it became an external explosion, and it was only one expression of a world-wide symptom.

Manners are apt to be regarded as a surface polish. That is a superficial view. They arise from an inward control. A fresh realization of their importance is needed in the world to-day, and their revival might prove the salvation of civilization—as happened after the devastating civil and religious wars of the seventeenth century, and again after the French Revolutionary earthquake. For only manners in the deeper sense—of mutual restraint for mutual security—can control the risk that outbursts of temper over political and social issues may lead to mutual destruction in the atomic age.

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